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1901

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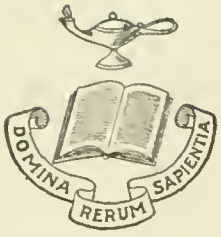

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TRANSACTIONS

OF THE

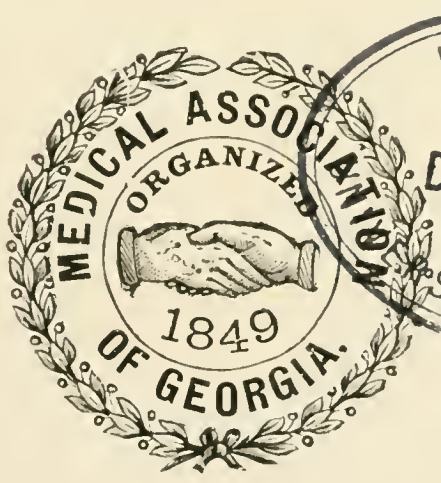
MEDICAL ASSOCIATION

OF

GEORGIA

FIFTY-SECOND ANNUAL SESSION

1901



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ATLANTA, GA.
THE FRANKLIN PRINTING AND PUBLISHING COMPANY
Geo. W. Harrison, State Printer, Manager.
1901.

"RESOLVED, That this Association shall not be considered as indorsing views of authors of papers published in connection with the Transactions, unless definitely so indorsed in the Proceedings of the Association.

"RESOLVED, That the above resolution appear annually upon the title page of our published Proceedings."

Transactions 1873.

OFFICERS.

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Floyd W. McRae	1904

(By-Laws provide that all members of the Committee on Medical Legislation shall reside in Atlanta.)

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MINUTES

OF THE

Medical Association of Georgia.

Fifty-Second Annual Session.

FIRST DAY—MORNING SESSION.

Augusta, Ga., April 17, 1901.

The Association met in the city court room of the Richmond county court-house, and was called to order at 10 a.m. by the President, Dr. S. C. Benedict of Athens.

Prayer was offered by the Rev. C. C. Williams, D.D., of Augusta, after which the Hon. Jacob Phinizy, Mayor of Augusta, was introduced and delivered the following address of welcome in behalf of the city of Augusta:

ADDRESS OF WELCOME.

Mr. President and Gentlemen of the Medical Association:

When my good friend Dr. Foster requested me to make this welcome address, I somewhat hesitated because I felt sure that there were others more competent and better suited for the occasion than myself. But, being at all times desirous of accommodating my kind friend, I acceded to his

request. I know very well that the selection he made was not due to the fact of any special fitness that I possess for this occasion, but by reason of the fact of my being the chief executive of the city of Augusta.

In the name, therefore, of the city of Augusta and its good people, I welcome you among us, and I most cordially welcome you upon this occasion. We have a city, as you well know, renowned for its culture and refinement, broad avenues, handsome residences, beautiful lawns, stately trees; and we have also, not very far distant, the famous Sand Hill of Augusta that has been given a world-wide reputation for the excellency of its climate, and is now known the United States over as a resort for winter tourists. We have mounted upon this height a magnificent hotel that equals those of Florida and elsewhere.

We have also to invite your attention to our magnificent water-power and water-works system. This water-works system is equalled by none other. It is by far superior to any other in this section of the country. We take the water from the canal, four miles out, and there pump it up four hundred feet on to Sand Hill, and there it goes through a system of filtration and comes to the city by gravitation, and the pressure is so great that we have to employ reducing valves. We have seventy-five or eighty pounds of fire pressure at almost every point in the city, and have almost discarded fire-engines in the last six months, as the pressure is so great that they are found to be useless.

All these things are attractive to strangers, and I hope you will take the time while you are in the city to visit these places. You will find them especially attractive. In regard to Sand Hill, I think it would be well to relate a little incident. I understand that doctors are not opposed

to having a few things told at their own expense. Not long since a young lady went north as she had a malady which the physicians could not well diagnose. She consulted a specialist and he pronounced her trouble nervous prostration, and that the only remedy would be for her to go to the Sand Hill of Augusta and there repose in the balmy air of the climate. The young lady replied that she was just from the Sand Hill, as she lived there. (Laughter.)

I believe also it is said of a celebrated physician in Paris who was consulted by Grimaldi, the great comedian, and the physician told him he was troubled with melancholia and that the best remedy would be for him to give up everything and devote himself to mirth-giving avocations and all pleasures he could find of a light and trivial order, and in conclusion he told him, "My friend, the very very best thing you can do is to go and see the great comedian Grimaldi." (Laughter.)

Gentlemen, to be a little personal, about seven or eight years ago I was troubled myself with a malady. The doctors did not seem to know what was the matter with me. I went north and consulted a specialist, and he said he did not know what was the matter, and I told him to make an exploratory operation and find out. He did so and found out what the trouble was, and he told my friends and relatives that he could not remedy the trouble, and that the best thing to do was to go home, as I would be dead in six weeks. Gentlemen, I stand before you to-day a living refutation of what he said, and by no means a sick man. (Laughter.)

Gentlemen, in the name of Augusta I give you a most hearty welcome to our city, yea, to our hearts and homes.

Dr. J. B. Morgan, of Augusta, welcomed the members

of the Association in behalf of the medical profession of Augusta, as follows:

Gentlemen of the State Medical Association:

Another year has passed and gone, seemingly as swift as a shadow, as fleeting as a dream, and we convene again in annual convocation assembled to promulgate truth and advance scientific medicine.

It was within the hospitable gates of liberal, progressive Atlanta that we greeted each other last. Since then bright Summer, with balmy breath and verdure green, has gone laughing down the aisles of time; mellow autumn, with golden corn and garnered sheaves, like a dream of beauty has glided away; then, frosty Winter came circling round this Southern zone, and the leaves were sear and the flowers were dead; it, too, has joined the cycles of time, and now, just as "Spring unlocks the flowers to paint the laughing soil," we meet again to renew pleasant associations of the past and to fan into ready flame the luminous coals of friendship.

Confucius it is who tells us that "words are the voice of the heart," and yet I feel that words are too cold and phrases too empty for me to even attempt to express our heartfelt, sincere pleasure at having you gentlemen with us again. Five years have passed since Augusta has had the privilege and honor of entertaining the Medical Association of Georgia—a long time to wait, but the waiting has served but to compound the interest and add it to the principal of the welcome that Augusta is always proud and delighted to extend to you.

No formal or friendly words of welcome are necessary to make you welcome. What class of men are more familiar with welcomes than doctors? Their noble calling furnishes the pass-key that unlocks the door of every heart and of every home.

When smiling sunshine gladdens the day or when the shadows of night obscure the stars the physician is always a welcome guest. In fact, his visits are so welcome, and the public so determine to see him, that it is willing to pay him for the privilege of his society at so much per visit.

We are glad to welcome you, not only for ourselves but for your grand mission as well. For well we know that you are here, not solely to enjoy our society, nor yet to shake off dull care in convivialism, but to assiduously cultivate and enlarge the field of your usefulness to suffering humanity. Speaking, therefore, for the local profession and for the entire population of our city, we extend to you the most cordial welcome that generous hearts can proffer.

We feel honored at your presence and rejoice over the opportunity to enjoy your society. Our time, our homes, and our tables are yours, and we beseech you to accept them and enhance our pleasure by freely using them. There can be no better place in Georgia for the Association to hold its sessions than in Augusta. Our great and goodly old city has been noted for more than a hundred years for all the high and noble characteristics that constitute true greatness and permanent prosperity. No blare of trumpets nor beat of drum has ever been necessary to boom Augusta. Unostentatious, self-contained and self-sufficient, she has steadily moved onward and upward, her credit unimpaired and unsurpassed, her lasting prosperity assured.

While Augusta, with true old Southern hospitality, invites citizens from every portion of this great country to visit us, and offers them unexcelled inducements to locate permanently among us, what she prizes far above the quantity is the quality of her people. Since the organ-

ization of our Association, in 1849, Augusta has furnished to its ranks some of its best blood and some of its finest talent.

She has the honor of having given to the Association its first president, the distinguished Lewis D. Ford. Georgia's first president of the American Medical Association was no other than the illustrious and beloved Henry F. Campbell. Milton Anthony, Louis A. Dugas, Joseph A. Eve, are names of physicians upon whose brows fame has lovingly placed a chaplet of immortelles. These men, in the history of medicine, and in the archives of this Association, were "great in counsel and mighty in work," and "In Memoriam" will the records of their noble, unselfish lives to be forever preserved.

If the burial place of Mahomet make to the Islamite the Mecca of their hearts, so should the graves and the memories of these great men make Augusta the medical Mecca of Georgia.

Our Association stands proudly to-day on the threshold of her fifty-second anniversary. The practice of medicine has been revolutionized and modern surgery was born and has developed within the life of this Association. All the great questions which have engaged the thought of the medical world, all the wonderful discoveries and improvements of the last fifty years, have been brought to the attention of this body. What a momentous period in the history of science does the life of this Association cover. Almost coincident with its organization was announced to the world the discovery of anesthesia by ether; this, coupled with the methods first urged by Lister, have made possible the wonderful advances of modern surgery.

The progress of our Association has ever been to the front, until to-day it takes rank among the leading organizations of its kind in this country. While your work in the past has been an inspiration to the profession, a polar

star to medicine, and a benediction to the sick and suffering, we feel and believe that your best labors lie before and not behind you. We trust that the present session will far excel all former ones in worth and interest. Our local profession eagerly anticipate rare pleasure and profit from your learned and scientific papers and discussions.

We are sure that your presence among us will leave us better doctors and make us more earnest, active workers in the ever-widening field of medicine. We shall be sorry when you leave us, and always glad when you come. Augusta offers you a permanent home for the Association. We would be gratified and delighted to have you meet here every year. Again, gentlemen, I bid you welcome, heartily, sincerely, cordially welcome.

The President announced that the response to the address of welcome was to have been made by Dr. Frank M. Ridley of LaGrange, but that he had received word from Dr. Ridley that he could not be present. The President then called upon Dr. Baird to respond, and he spoke as follows:

Mr. President:

While I am willing to accept the honor, I am not ready to perform the agreeeable duty which has suddenly devolved upon me, and by responding to the eloquent addresses just heard, to represent one of the most gifted and accomplished gentlemen in the State, and I commiserate you, sir, and this expectant audience, in the disappointment which you are to suffer on account of his unavoidable absence to-day.

Some of your visitors, who have been familiar with this portion of the medical world in the years gone by, have heard with feelings of sadness the graceful reference to the noble men who have illustrated and adorned our profession but whose places here know them no more. We miss

Ford, Campbell, Anthony, Dugas, Eve, Coleman and others who belong to the history of this city and of this country.

But, Mr. President, while we are saddened by their absence, we find that the places of these distinguished men are not vacant. They are filled by their successors, and those whom we admired and loved in life are ably represented by faithful followers who worthily wear their unsullied mantles.

In enumerating the chief attractions of this delightful city, his honor the Mayor, with commendable pride, referred to the balmy climate and sparkling water freely offered to all. We appreciate and duly enjoy the quality of the air which on this glorious spring morning comes to us in gentle undulations as fragrant in its freshness and as grateful in its purity as the delicate perfume exhaled by the rose. Our senses are charmed also by the beautiful vistas which open to our vision on every side, and we rejoice in the realization that here indeed

"The hues of the earth and the tints of the sky,
In color though varied in beauty may vie."

But nature, prodigal as she is in her royal gifts, has not stopped at these manifestations of her favor and munificence. Broad avenues, fringed with towering trees decked in luxuriant verdure; palatial homes, proclaiming plenty, luxury and refinement—the happy abode of elegance and contentment—are only the pleasing background and the superb setting for the purest examples of the highest type of peerless Southern womanhood. Here her representatives, securely entrenched in the hearts of a valorous people, receive the admiring homage which her attributes always inspire, and we, conscious of her deserts and rejoicing in her presence, gladly lay our tribute at her feet.

Now, Mr. President, without any desire or any intention

of being critical, some of us can recall the time when the water we are invited to drink was not clear and sparkling as it is to-day, but on the contrary when it was very muddy. That condition was then considered an advantage. A substitute beverage was a real necessity and had to be provided. Generous and appreciative citizens were always ready to provide and indorse their selection by their example. So, between us, gentlemen, from certain promising indications, incidentally observed, I apprehend the former habit has not been entirely supplanted, and the remains of the old custom have not totally died out.

But, over and beyond the natural and acquired graces which lend a lasting charm to Augusta the beautiful, we may plainly discern the substantial strata of solid worth. With millions invested in manufacturing enterprises, and millions more in other remunerative industrial and commercial pursuits; with millions paid in annual wages to thousands of operatives; with an inexhaustible water-power; the largest inland cotton market in the world; with a united people, enterprising but conservative, energetic but prudent, we easily discover the cause of present prosperity and the sure foundation of future greatness.

In accepting the bountiful hospitality so graciously offered, we may congratulate ourselves that we are rich. When we take the generous speakers at their word, and come into possession of all that Augusta has, we can not be called poor. Our coffers will then be overflowing; our wildest dreams of grandeur and our loftiest flights of ambition will be fully realized and completely satisfied. Therefore, gentlemen, in behalf of this Association, we joyfully accept your proffered welcome, knowing full well the sincerity of your earnest greeting and the real value of your friendly salutation. (Applause.)

Dr. Benedict announced that the annual address of the

President should have been omitted from the program, as it had been dispensed with some years ago.

The President invited all the ex-presidents to occupy a seat upon the platform, and he then announced that the Association was ready for business.

Dr. Eugene Foster, Chairman of the Committee of Arrangements, then read the following report:

To the President and Members of the Medical Association of Georgia:

GENTLEMEN: Your Committee of Arrangements beg to report as follows: The sessions of the Association will be held in the City Court Room at the City Hall.

The private office of the Judge of the City Court will be used by the Board of Censors.

Ample provision has been made for exhibitors in two rooms and the hall outside of the room in which the sessions of the Association are to be held.

Your committee respectfully suggest that the morning sessions commence at 9:30 a.m., and adjourn at 1 p.m., and that afternoon sessions be held from 3:30 p.m., to adjourn at the pleasure of the Association, as the hour set for the commencement of the afternoon session—*i. e.*, 2:30 o'clock, is the usual dinner hour in this city.

Since writing the Chairman of the Program Committee, we have decided to substitute a barbecue dinner for the proposed banquet. We therefore respectfully request that the Association adjourn on to-morrow, Thursday, from 1:30 to 5 p.m., to attend the barbecue dinner which is tendered the Association by the medical profession of Augusta. It is hoped that every member of the Association will attend this dinner. The members of the Association will find cars waiting for them on Broad street, immediately in front of this building at 1:40 p.m., and they are requested to be on hand promptly.

The hours suggested are to be on the 75th meridian time.

Respectfully submitted,

EUGENE FOSTER, Chairman.

Dr. Foster also read letters from the presidents of the

Commercial Club and the Elks Club, extending the courtesies of their respective clubs to the members of the Association.

The President then called for the report of the Committee on Program.

In the absence of Dr. St. J. B. Graham, Chairman of the Committee on Program, Dr. Howard J. Williams, of that Committee, presented the following program:

FIRST DAY, WEDNESDAY, APRIL 17.

MORNING SESSION, 9:30 O'CLOCK.

Prayer by Rev. C. C. Williams.

Address of Welcome, on behalf of the City by Hon. Jacob Phinizy.

On behalf of the Profession, by Dr. J. B. Morgan.

Response by Dr. Frank Ridley, LaGrange.

President's Annual Address.

Report of Committee of Arrangements.

Report of Committee on Programme.

Report of Committee of Publication.

Report of Committee on Necrology.

Report of Committee on New Members.

Report of Committee on Medical Legislation.

Report of Committee on Constitution and By-Laws.

SURGERY.

1. Excision in Tuberculosis of Joints, Hip and Wrist, Dr. Howard J. Williams, Macon.
2. Report of Surgical Cases, Dr. W. F. Westmoreland, Atlanta.
3. Report of Surgical Cases, Dr. Thomas R. Wright, Augusta.
4. Internal Derangement of the Knee Joint, with report of three cases of removal of the Internal Meniscus, or Semi-Lunar Cartilage, Dr. Geo. R. Fowler, Brooklyn.
5. The Pronated Foot, Dr. Michael Hoke, Atlanta.
6. The Early Operation for Appendicitis from a Pathological Standpoint, Dr. J. G. Carpenter, Standford, Ky.
7. A Rational Non-Operative Treatment for Appendicitis, Dr. M. X. Corbin, Savannah.
8. Report of Unusual Surgical Case, Dr. Hugh Burford, Brunswick.

9. Gastrostomy for Foreign Body in the Esophagus, Dr. Wm. S. Goldsmith, Atlanta.
10. A Hysterectomy with Interesting Complications, Dr. John G. Earnest, Atlanta.
11. Ectopic Pregnancy, Dr. W. S. Elkin, Atlanta.

AFTERNOON SESSION, 2:30 O'CLOCK.

1. Subphrenic Abscess and other Complications, Dr. J. McF. Gaston, Jr., Atlanta.
2. Report of Compound Fracture of Lower Jaw, Dr. P. R. Cortelyou, Marietta.
3. Cæsarean Section, with Report of Successful Operation on a Patient with a Rachitic Pelvis, Dr. E. C. Davis, Atlanta.
4. Conservative Operative Treatment for Appendicitis, Dr. W. E. Fitch, Savannah.
5. Lung Injuries, Dr. D. A. N. Thomas, Jersey.
6. The Advantages of the X-Ray in the Treatment as well as the Diagnosis of Certain Surgical Cases, Dr. Marcus F. Carson, Griffin.
7. Some Points in the Administration of Chloroform, Dr. T. M. McIntosh, Thomasville.
8. The Alum Enema in the After Treatment of Abdominal Operations, Dr. Virgil O. Hardon, Atlanta.
9. The Treatment of External Cancer with Caustic Potash, Dr. M. B. Hutchins, Atlanta.

SECOND DAY, THURSDAY, APRIL 18.

MORNING SESSION, 9:30 O'CLOCK.

Reading of Minutes.
Application for Membership.
Report of Board of Censors.
Report of Special Committees.

1. A Modification in the Technique in the Removal of the Kidney;
   Closure of Deep Lacerations of the Cervix Uteri;
   Removal of Fibroid Tumors of the Lower Section of the Uterus by Spiral Incision.
   New Obstetrical Forceps, and Axis Traction Rods,
   —Dr. Geo. H. Noble, Atlanta.

OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

1. Diseases of the Mastoid. Dr. A. W. Calhoun, Atlanta.
2. The Use and Abuse of Nasal Spray, Dr. Dunbar Roy, Atlanta.

3. Protargol: Its Efficacy in Ophthalmia Neonatorum, and Trachoma, Dr. J. Lawton Hiers, Savannah.
4. Report of Six Cases of Congenital Mutes and Speech Established, Dr. M. M. Stapler, Macon.
5. A Contribution to the Study of Deafness, Dr. Ross P. Cox, Rome.
6. Epidemic Sore Throat, Dr. L. L. Sharp, Harmony Grove.
7. Syphilis in Relation to Diseases of the Eye, Dr. Alex W. Stirling, Atlanta.
8. Report of Cases, Twenty-five Operations for Mastoiditis, Dr. J. M. Crawford, Atlanta.
9. Ophthalmia Neonatorum, from the Standpoint of the General Practioner, Dr. M. L. Currie, Savannah.
10. Otorrhœa, Dr. Wm. Lewis Bullard, Columbus.
11. The Baneful Effects and Curability of Catarrhal Inflammation of the Upper Air Passages, Dr. Arthur W. Hobbs, Atlanta.
12. Otorrhœa and its Management, Dr. J. H. Shorter, Macon.

AFTERNOON SESSION, 2:30 O'CLOCK.

OBSTETRICS, GYNECOLOGY AND PEDIATRICS.

1. Treatment of Endometritis, Dr. Wm. Clifton Lyle, Augusta.
2. The Importance of Proper Management of the Third Stage of Labor; The Cause and Treatment of Some Forms of Hemicrania, Dr. J. H. Bradley, Dublin.
3. Infant Feeding, Dr. S. A. Visanska, Atlanta.
4. Bottle-Fed Babies, Dr. Wm. Z. Holliday, Augusta
5. Treatment of Gastro-Intestinal Disorders in Children, Dr. F. V. Turk, Stilesboro.
6. Pneumonia in Infants and Small Children, Dr. W. Jay Bell, Atlanta.
7. Quinin as an Ecbolic, Dr. O. B. Bush, Colquitt.

THIRD DAY, FRIDAY, APRIL 19.

MORNING SESSION, 9:30 O'CLOCK.

Reading of Minutes.
Application for Membership.
Report of Board of Censors.
Report of Auditing Committee.

GENERAL MEDICINE.

1. Medical Supervision of Schools and School Children, Dr. Edgar J. Spratlin, Forsyth.

2. Marriage and Heredity: Its Relation to Insanity, Dr. T. O. Powell, Milledgeville.
3. Marriage: Its Relation to Tuberculosis, Dr. J. S. Todd, Atlanta.
4. Venereal Diseases: Their Prevention, Drs. Childs and Champion, Atlanta.
5. Yellow Atrophy of Liver, with Report of a Case, Dr. T. E. Oertel, Augusta.
6. Some Observations in a Series of Fifty Cases of Malaria, Dr. E. E. Murphey, Augusta.
7. Intubation in Tetanus, Dr. Jas. T. Ross, Macon.

AFTERNOON SESSION, 2:30 O'CLOCK.

1. Antiseptic and Eliminative Treatment of Typhoid Fever, Dr. T. V. Hubbard, Atlanta.
2. Hydrophobia: Its Prevalence and Prevention, Dr. Henry Slack, LaGrange.
3. Some Social Problems, Dr. R. R. Kime, Atlanta.
4. The Diagnosis and Treatment of Some Forms of Gastric Diseases, Dr. W. B. Crawford, Lincolnton.
5. Variola, Dr. F. M. Ridley, LaGrange.
6. Types of Smallpox, Dr. Eugene Foster, Augusta.
7. Malarial Neuritis, Dr. St. J. B. Graham, Savannah.
8. A New Discovery in the Treatment of Chronic Diseases, Dependent Upon Cell Changes, Dr. J. Cheston King, Atlanta.

Unfinished Business.

New Business.

The report was adopted, after changing the hour of the afternoon session of the second day to 8:30 p. m., on account of the barbecue dinner.

Dr. V. D. Lockhart, Vice-President, was invited to a seat on the platform.

The President called for the report of the Committee on Publication, and Dr. Louis H. Jones, the Secretary, stated that as ex officio member of the Publication Committee he would include the report of that committee in his report.

As the Chairman of the Committee on Necrology was not present, it was decided to receive this report in the afternoon session.

Dr. Jas. B. Baird, as Chairman, read the report of the Committee on Medical Legislation as follows:

REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

MR. PRESIDENT:—Your committee asks leave to report that in accordance with instructions received from this Association the two bills drawn last year—one making confidential communications to the physician by his patient privileged communications, and the other providing for compensation for expert services in the courts of this State—were reintroduced at the last session of the General Assembly. These bills were referred to the general Judiciary Committee of the Senate. Your committee appeared before the Senate Committee, by whom it was given most courteous attention, and submitted arguments in favor of the passage of these bills, but, in consequence of the constant pressure of other matters of general and direct medical interest, it was never practicable to call up these bills for final action and report. It was deemed expedient by their friends, under all the circumstances, to pass them for the session. They are, therefore, in the hands of the Judiciary Committee and will doubtless receive early attention at the next annual meeting of the General Assembly.

Your committee also appeared before the Committee of the House that had under advisement the bill indorsed by this Association, designed to create a State Board of Health. Several bills of like kind were introduced into the House during the session, but the committee having the matter in charge preferred and gave its approval to this particular bill exactly or substantially as it came from this Association. Consideration of the favorable report of the committee was not reached before adjournment, but it will probably receive attention during the first days of the next session. It is understood that the Governor is earnestly in favor of this bill and that he will use his influence to secure its enactment.

Another determined effort was made to pass the bill providing for the establishment of a board of so-called Osteopathic examiners for this State similar to the bill which was vetoed by the Governor.

Resistance to this measure consumed a large portion of the time of your committee and left but little opportunity for attention to other matters. The promotors of this bill were untiring in

their efforts and had thoroughly entrenched themselves for a vigorous campaign. The movers in the scheme had secured the influence of a large number of respectable citizens from every part of the State, and they brought, in this manner, heavy pressure to bear upon the members of the Legislature, through the medium of personal letters, circulars, magazines, individual appeals, and by a persistent and shameless lobbying.

Your committee issued earnest and repeated appeals by mail and by wire to the medical profession throughout the State to aid in resisting the plan to subvert and to practically destroy the safeguards now thrown around the people for their protection against incompetent practitioners of medicine. The prompt and cordial response to these appeals was most gratifying, and, better still, was effective in blocking the scheme, and finally accomplished the defeat of the bill by a decisive vote in the Senate.

It was pleasing in the highest degree to observe the power of the three thousand doctors of this State when fully aroused and united for a common purpose. This experience illustrates in a striking manner the potency of this influence when properly directed, and it is devoutly hoped that this object-lesson may not be underestimated or forgotten.

The necessary expense incurred by your committee in the performance of its duties amounted to $148.10, a detailed statement of which, with vouchers, will be handed to your Auditing Committee. About one half of this amount was expended for telegrams, postage, printing and typewriting. This Association appropriated $50.00 for the use of the committee. Contributions to supply the deficit were requested from the medical profession of several of the larger cities of the State, and the following donations were received and are hereby acknowledged:

Individual subscriptions through Dr. R. M. Harbin, Rome $10.00

The Macon Medical Society $25.00

The Atlanta Society of Medicine $25.00

From Drs. Ford, Foster, Allen, Coleman, Doughty, Oertel, Hull, Morgan, Wilcox and Wright, Augusta.....$25.00

The small outstanding balance will be made up by the several members of your committee.

Your committee desires to direct the attention of the Association to the advisability of becoming a corporate body, and it is respectfully recommended that such steps as your wisdom may suggest be taken to secure a suitable charter without unnecessary delay. This will confer upon the Association the right to own

property, to sue and to be sued as a body, and relieve the individual members from the personal liability which pertains to a mere partnership.

Respectfully submitted,

JAMES B. BAIRD, Chairman,
E. H. RICHARDSON,
C. D. HURT,
W. S. ELKIN,
GEO. H. NOBLE,
FLOYD W. MCRAE.

Dr. Cooper spoke of the valuable work done by this committee and their untiring efforts to accomplish their object, and urged the members of the Association to cooperate with the committee and aid them by concerted action. He stated that there should be some permanent organization for opposing osteopaths and others of this class.

Dr. Benedict called attention to the recommendation contained in the report that the Association secure a charter.

Dr. Foster moved that the report of the committee be adopted, and that Dr. Baird be requested to present the matter of a charter in suitable form as a special business for the next day. Motion carried.

Dr. J. C. King presented the following:

Inasmuch as there was decided effort during the last session of the legislature to carry a bill, giving to osteopaths the right to practice medicine, the same being defeated under the heavy fire of that distinguished senator, Roland Ellis, and others,

Be it resolved, That the Georgia Medical Association unite in extending to Senator Ellis and others who assisted him their heartfelt gratitude in their decided stand in weeding out of the profession all such irregulars.

Resolved further, That a copy of the above resolution be sent to Senator Ellis by the Secretary.

Attention was called to the fact that other senators had taken an active part in opposing the osteopathy bill and that their efforts should be recognized, and, therefore, on

motion, this resolution was referred to the Committee on Medical Legislation, to report back to the Association.

Dr. Foster moved that a rising vote of thanks be extended to Dr. Baird and his committee for their earnest and thorough work.

Motion unanimously carried by a rising vote.

The President called for the report of the Committee on Constitution and By-Laws, and on motion the hearing of this report was postponed until later.

Dr. Westmoreland, as Chairman, read the report of the Committee on New Members. On motion it was adopted.

The President stated that as there were not enough members of the Board of Censors to make a quorum to transact the business of the Association, that it would be in order to vote upon the following amendment to the Constitution which was introduced at the last meeting:

That the Constitution be so amended that in the event of lack of a quorum of Board of Censors at any time, the President of the Association shall appoint temporarily a sufficient number of members to constitute a quorum of Board of Censors.

Discussion upon this amendment developed considerable opposition to confining the power of the President to appointing simply a quorum instead of a full membership of the Board of Censors, and upon being put to a vote the amendment was lost.

Dr. Foster called attention to the fact that under the precedent which had been established in the past, the President had the power to complete the Board of Censors by appointing temporary members to serve until the regular members should appear.

Acting under the authority conferred by this precedent, the President appointed the following members to complete

the Board of Censors: Dr. V. O. Hardon, to act as chairman in place of Dr. W. S. Elkin, and Dr. R. B. Doster in place of Dr. Chas. Hicks.

The President introduced Dr. Geo. R. Fowler, of Brooklyn, to the Association, and he was invited to occupy a seat on the platform and participate in the discussions.

The reading of papers was proceeded with.

Dr. Howard J. Williams, of Macon, read a paper on "Excision in Tuberculosis of Joints—Hip and Wrists," and this was discussed by Drs. W. F. Westmoreland and Hunter P. Cooper.

Dr. W. F. Westmoreland, of Atlanta, read a paper on "Report of Surgical Cases," which was discussed by Drs. McRea, Earnest, Fowler, and Westmoreland (in closing).

On Motion, the Association adjourned to meet at 3:30 p.m.

FIRST DAY—AFTERNOON SESSION.

The Association assembled at 3:30 p.m., and was called to order by the President.

The President read a telegram from Dr. A. W. Calhoun, stating that at the last moment he was prevented from attending the meeting, and sent his regrets.

Dr. Thos. R. Wright, of Augusta, read a paper entitled "Report of Surgical Cases." This was discussed by Dr. Earnest.

Dr. Hardin introduced the following resolution:

WHEREAS, vaccination has been accepted as the greatest benefaction to humanity during the last century, being given by the medical profession, and has been accepted by all civilized governments, and in all countries where compulsory vaccination has been adopted the prevalence of small-pox has been well nigh obliterated; and,

WHEREAS, our public schools furnish a great means for the dissemination of the disease.

Resolved 1, That the Medical Association of Georgia, through

its Legislative Committee, memorialize the Legislature and Senate of our commonwealth to pass an act requiring all individual pupils entering the public schools of the State to present certificate of vaccination from a registered physician, unless otherwise advised in writing by a registered physician and sanctioned by the local governing school board.

Resolved 2. That the passage of such an act legalizing vaccination would give confidence to the uninformed as to the protective value of same from small-pox, and would promote its more general employment.

Resolved 3. That in view of statistical facts, the protective value of vaccination from small-pox cannot be questioned, except by the ignorant or the fanatics.

This was referred to the Committee on Medical Legislation.

Dr. Geo. R. Fowler, of Brooklyn, N. Y., read a paper entitled "Internal Derangement of the Knee-joint, with report of three cases of removal of the Internal Meniscus, or Semi-lunar Cartilage."

Dr. Jno. G. Earnest, of Atlanta, presented a paper on "Hysterectomy with Interesting Complications."

Dr. P. L. Cortelyou, of Marietta, read a paper entitled "Report of Compound Fracture of the Lower Jaw."

Dr. E. C. Davis, of Atlanta, read a paper on "Cæsarian Section, with Report of Successful Operation on a Patient with a Rachitic Pelvis." This was discussed by Drs. Earnest and Ross.

Dr. D. A. N. Thomas, of Jersey, Ga., presented a paper on "Lung Injuries."

Dr. W. H. Doughty, Jr., of Augusta, exhibited a specimen of a pregnant ovary which was removed twelve months after gestation.

Dr. V. O. Hardon, of Atlanta, contributed a paper entitled "The Alum Enema in the After Treatment of Abdominal Operations," and this was discussed by Drs. Morgan, McRae and Earnest.

The President then called for the reports of special committees, as this closed the afternoon program of papers.

Dr. Baird, as Chairman of the Committee on Medical Legislation, presented the following resolution:

Resolved, That the Medical Association of Georgia extends to Hon. Roland Ellis and his able coadjutors in the State Senate its sincere thanks for their valiant efforts for the preservation unimpaired of the statute designed to protect the people against incompetent and unqualified practitioners of medicine, and all peripatetic pretenders.

The resolution was adopted.

Dr. Elliott, of Savannah, stated that he had to leave the city that night, and as he had come to Augusta especially to invite the Association to meet next year in Savannah that he would like to do so at this time. He then extended a hearty invitation for the Association to come to Savannah and urged that it be accepted.

The President announced that this would be acted upon at the proper time.

The President stated that during the past year he had appointed Dr. J. H. Shorter, of Macon, a delegate to the Pan-American Congress which met in Havana.

Dr. Hardon reported favorably, on behalf of the Board of Censors, on the following applications presented for membership, and these applicants were declared duly elected:

Name.	Residence.	County.
J. M. McDonald	McDonald	Coffee.
J. L. Selman	Douglasville	Douglas.
M. L. Perry	Milledgeville	Baldwin.
Michael Hoke	Atlanta	Fulton.
O. L. Rogers	Sandersville	Washington.
Jas. N. West	Toccoa	Habersham.
Geo. Y. Moore	Cuthbert	Randolph.
Jas. B. Dillard	Davisboro	Washington.

Name.	Residence.	County.
Jno. M. Mobley	Milledgeville	Baldwin.
Theodore Toepel	Atlanta	Fulton.
R. H. Wicker	Rome	Floyd.
Jno. O. Cook	Savannah	Chatham.
Kelley J. Yerwood	San Luis Potosi, Mexico,	P. O. Box 105.
L. P. Eberhardt	Elberton	Elbert.
J. W. Smith	Monroe	Walton.
T. H. P. Fincher	Jersey	Walton.
Dudley B. Ware	Wright	Wilcox.
Hinton J. Eve	Augusta	Richmond.
R. B. McLaws	Augusta	Richmond.
E. S. Peacock	Harrison	Washington.
A. M. Torbit	St. Clair	Burke.
J. R. Youmans	Stillmore	
G. E. Youmans	Adrian	Emanuel.
Wm. J. McNaughton	Augusta	Richmond.
L. P. Youmans	Swainsboro	Emanuel.
F. M. Lothridge	Homer.	Banks.
O. N. Hardin	Homer	Banks.
A. E. Cochran	Homer	Banks.
J. E. Cole	Ruckersville	Elbert.
Thos. A. Baxton	Girard	Burke.
S. S. Smith	Watkinsville	Oconee.
H. Brooks, Jr	Waycross	Ware.
Jas. E. Overstreet	Baxley	Appling.
W. B. Taylor.	Dexter.	Laurens.
Jas. E. New	Dexter	Laurens.
A. B. Mathews	Elberton	Elbert.
L. McD. Story	Mistletoe	Columbia.
J. N. Dorminy	Kerns	Dooly.
A. M. Rountree	Adrian	Emanuel.
Warren A. Brewster	Augusta	Richmond.
Chas. P. Brightwell	Augusta.	Richmond.
Wm. L. Green	Point Peter	Oglethorpe.
C. O. Brock	Brockton	Jackson.
A. H. Hilsman	Albany	Dougherty.
E. H. Rawls	Savannah	Chatham.
J. F. Anderson	Clinton	Jones.
R. L. Miller	Tennille	Washington.

On motion, the Association adjourned to meet at 9:30 Thursday morning.

SECOND DAY—MORNING SESSION.

The Association met at 9:30 and was called to order by the President.

The reading of the minutes of the previous sessions was dispensed with.

The Secretary, Dr. Louis H. Jones, read the following report:

MR. PRESIDENT: Upon assuming the office of Secretary, my first endeavor was to get a roll of members as nearly accurate as possible. I found quite a number of names which had been omitted from the roll and other names on the roll where the members had been dead several years. I ask the earnest co-operation of the members in this matter. When a member changes his residence, he should at once notify the Secretary, and I hope that all members will notify me of the death of any member occurring in their town or vicinity.

The membership of the Association is now 592 active members, four non-resident members and twenty honorary members.

During the year I have had a number of requests from medical societies and libraries for copies of the Transactions. I have thus supplied about fifty libraries and societies with the Transactions. I found that the library of the Surgeon-General had no file of our Transactions. This was corrected, and there is now at Washington a complete file of Transactions from date of first publication to present year.

Copies of Transactions for past year have been sent to 460 members. This was done in accordance with list furnished by Treasurer of members who had paid their dues. There are then, in round numbers, 150 members who are in arrears and who have not gotten the Transactions, and I now have on hand 170 copies. Last summer, at the request of the President, the Treasurer shipped to me all old Transactions in his possession; there were of these five dry-goods boxes, weighing over two tons. These I had stored, and would request authority to save only so many copies of each year as may be deemed necessary, and to get rid of such a uselessly large number of back Transactions.

I am endeavoring to get up and keep a list of all medical organizations in the State. With this object in view, I would ask all members to let me know of any societies in their towns or counties, and names of officers of same.

LOUIS H. JONES, Secretary.

April 18th, 1901.

On motion the report of the Secretary was adopted.

After a discussion as to the disposition of the back numbers of the Transactions the following was introduced by Dr. Foster:

Moved, that the secretary be authorized to furnish all members of the Association with back copies of the Transactions, so far as he may be able to furnish them, (preference being given to old members with broken sets). The members receiving copies must bear expense of shipping and must inform secretary within ninety days from date of the copies desired,

Resolved further, That the secretary be authorized to complete files and furnish copies to libraries where desired. The secretary to keep a complete file on hand, and such copies as may remain on hand after ninety days the secretary is authorized to make such disposition as he thinks best.

Motion seconded and carried.

The President called for reports of special committees, and Dr. Baird presented the following resolution in regard to securing a charter for the Association:

Resolved, That the Committee on Medical Legislation be instructed to procure for this Association a suitable charter, and that the sum of fifty dollars, or so much thereof as necessary, be appropriated to cover the expense incident thereto.

The resolution was adopted.

Dr. Henry R. Slack, as chairman of the Committee on Pasteur Institute, read the following report:

REPORT OF COMMITTEE ON PASTEUR INSTITUTE.

Mr. President and Members of the Medical Association of Georgia:

Your committee met in Atlanta, May 1, 1900, in Dr. Hurt's office and organized, electing Dr. Claude A. Smith secretary.

We issued the following letter to twenty-five physicians in different parts of the State, inviting them to become charter members:

LaGrange, Ga., May 10, 1900.

Dear Doctor: At the meeting of the Medical Association of Georgia in Atlanta last month, a paper was read showing the

necessity for Pasteur Institute in Georgia. After the discussion a committee was appointed to investigate the matter, "with power to act," and the following resolutions passed:

Resolved, That the Medical Association of Georgia indorse the establishment of a Pasteur Institute and Laboratory in Georgia.

Resolved second, That we will endeavor to secure, through legislative enactment, fifty per cent. of the tax on dogs for the support of said institution.

The committee met in Atlanta, May 1st, and decided it would be better to establish the Pasteur Institute and Laboratory in a home of its own.

We are going to apply for a charter June 1st, and would like to have you as a charter member. The membership fee will be $10.00 and no dues. The fee will include a handsome lithograph certificate of membership. If the institute pays you will receive dividends on your stock. You will also receive a discount of 50 per cent. from regular prices for all pathological and bacteriological work done in the laboratory.

Enclosed you will find a list of those you will be associated as charter members.

Please let me hear from you at once, or before the 28th, as our committe meets to make application for charter on 31st.

(Signed) Yours fraternally,
HENRY R. SLACK, Chairman.

Seventeen replied favorably, but five failed to respond with the $10.00 fee. The deficit was made up by the remaining twelve, and on May 31st we had an enthusiastic meeting in Atlanta, and employed Messrs. Kontz and Austin to obtain a charter for the Georgia Pasteur Institute and Laboratory. They promptly drew us a liberal and satisfactory charter, but owing to Judge Lumpkin's absence in Europe the same was not signed until September 8th, 1900. We then issued the following letter:

LaGrange, Ga., Sept. 5, 1900.

Dear Doctor: I am delighted to inform you that our attorneys, Messrs. Kontz & Austin, have advised me that the "charter for the Pasteur Institute and Laboratory will be signed, sealed and delivered on the 8th instant."

I will therefore call a meeting of the committee, charter members and original subscribers for September 11th, 1 P. M., in Dr. Hurt's office, Equitable Building, Atlanta. At this meeting we wish to organize, elect board of directors, formulate plans for

management, select site, place stock and make necessary arrangements to start to work, for there is plenty of it to do.

Please try to be on hand, but if it is impossible, send your proxy to some member of the committee, for we want to be operating before the legislature meets.

Hoping to see you next Tuesday, I am,

Yours fraternally,

HENRY R. SLACK, Chairman.

In response to it a majority of the committee met September 11th, subscribed $1,000 stock and proceded to organize by adopting a constitution and by-laws and electing the following Board of Governors: Drs. C. D. Hurt, Jas. N. Brawner, Claude A. Smith, J. H. McDuffie, E. P. Ham, St. J. B. Graham, Henry R. Slack, and Messrs. B. M. Hunt and Geo. C. Walters.

The Board of Governors then elected as officers: President, Henry R. Slack, M.D.: vice-president, J. H. McDuffie, M.D.; secretary and pathologist, Claude A. Smith, M.D.; physician-in-charge, Jas. N. Brawner, M.D.

We rented a house, No. 34 Auburn Avenue, Atlanta, and on November 15th were ready for patients. The Pasteur Institute is now well equipped and has a pathological and bacteriological laboratory, modest in proportions, but thorough in its work.

We have treated eleven persons bitten by rabid animals (eight proved to be rabid by inoculations on rabbits), all of whom are now well and grateful to this Association for encouraging the establishment of a Pasteur Institute in the South.

We have also turned away a number who have applied, but there was no evidence to show that they were bitten by rabid animals.

At the last meeting of the Board of Governors, every member of this association was elected a Fellow of the Pasteur Institute, and upon payment of $10.00 you will receive a certificate of one share of stock. Fellowship entitles you to a reduction of 50 per cent. on all pathological work you have done in the laboratory, and will pay a handsome dividend on your stock if you only have one examination made a year. Your stock will also share in any profit made in the Pasteur department. Our financial report for five months is as follows:

Georgia Pasteur Institute and Laboratory	Dr.	Cr.
Capital stock paid in	$1.000 00	
Received for treatment and path. work	1,110 50	
Charter and apparatus		$1,000 00
Salary of physician and pathologist		350 00
Running expenses		523 15
Cash, notes and accounts		237 35
	$2,110 50	$2,110 50

This shows a profit of over 20 per cent., although we have treated nearly one-fifth of the cases free.

We would like to have you all take at least one share of stock for $10 and pay it now to our secretary, Dr. Claude A. Smith. We urge this for three reasons: (1) We want your financial backing so we can erect a suitable building—a home that each Fellow can point to with pride. (2) The more members we have the greater our usefulness (we do not want a small close corporation). (3) It is a good investment for you, as it has now passed through the experimental stage, and we believe dividends are assured.

We hope the action of your committee will meet your approval and will receive both your moral and financial support.

Respectfully submitted,
HENRY R. SLACK, Chairman,
CLAUDE A. SMITH,
C. D. HURT,
J. H. McDUFFIE.

The report was discussed by Drs. Foster, Slack, Lockhart, Visanski, Niles and Smith.

Dr. Foster moved that the report of the Committee on Pasteur Institute be referred to a special committee and that they report back to the Association.

The President appointed on this committee Drs. Foster, Powell, Holt, Doster and Baird.

Dr. Louis H. Jones moved that Section 5, of Article VII of the By-Laws, which reads, "No member shall receive a copy of the Transactions until his fees are paid in full," be stricken out. Motion carried.

Dr. Jones read a letter from the Dooly County Medical Society appointing delegates to the State Association.

The reading of papers was taken up.

Dr. Dunbar Roy, of Atlanta, read a paper on "Use and Abuse of Nasal Sprays," and this was discussed by Drs. Hobbs, Cox, Peete and Roy (in closing).

Dr. J. Lawton Hiers, of Savannah, presented a paper on "Protargol, its Efficacy in Ophthalmia Neonatorum and Trachoma."

This paper was discussed by Drs. Roy, Cortelyou, Kime and Hiers (in closing).

Dr. Harbin introduced the following resolution:

Resolved, That the Medical Association of Georgia commend the recent action of the legislature in authorizing the appointment of an ear, eye, nose and throat specialist to the Georgia School for the Deaf, at Cave Spring, as a wise measure, and which can not fail to contribute benefit to the institution.

Adopted.

The special committee appointed to consider the report of the Committee on Pasteur Institute reported as follows:

Your Committee, to whom was referred the report of the Special Committee on the Pasteur Institute, ask leave to unanimously report:

That the report be received by this Association as information only, and that the special committee, having successfully performed its duties, be discharged.

It is recommended that no action of this Association shall be construed as implying any liability or any responsibility whatever on account of said Pasteur Institute, or any further endorsement as an Association.

Respectfully submitted,

EUGENE FOSTER,
R. B. DOSTER,
W. F. HOLT,
T. O. POWELL,
JAS. B. BAIRD.

In making the report of the committee, Dr. Baird stated that they had invited Dr. Slack to meet with the Committee and that their report was agreeable to him, and therefore he moved that the report be adopted. Motion carried.

Dr. Ross P. Cox, of Rome, read a paper on "A Contribution to the Study of Deafness."

Dr. L. J. Sharp, of Harmony Grove, contributed a paper on "Epidemic Sore Throat."

Dr. M. L. Currie, of Savannah, presented a paper on "Ophthalmia Neonatorum from the Standpoint of a General Practitioner."

Dr. A. W. Hobbs, of Atlanta, read a paper on "The Baneful Effects and Curability of Catarrhal Inflammation of the Upper Air Passages."

The time for adjournment being near at hand, the discussion of the last four papers was postponed until the evening session.

Dr. Holt, as chairman of the Committee on Necrology, read the following report:

REPORT OF COMMITTEE ON NECROLOGY.

Death, the insatiate archer, has decimated the ranks of this association to an unusual extent since our last annual meeting.

Seldom, if ever, in its history, have we been called upon to mourn the loss of so many members: twelve of our members, three honorary and nine active, have answered the last roll-call, and are now resting from their labors, to wit:

Dr. A. W. Griggs, West Point.
Dr. R. B. Nesbit, Eatonton.
Dr. W. M. Brawner, Lexington.
Dr. Wm. Duncan, Savannah.
Dr. W. O'Daniel, Bullards.
Dr. W. F. Aiken, Savannah.
Dr. W. D. Coursey, Vidalia.
Dr. T. B. Hollis, Forsyth.
Dr. W. W. Joiner, Pulaski Co.
Dr. W. A. Means, Hendrix.
Dr. S. S. Pittman, Chipley.
Dr. Chas. D. Wall, Columbus.

The accompanying memorial tributes will express in only a slight degree the loss which the association, their families, and the community in which they lived and labored, have sustained.

Your committee have made strenuous efforts to present a full report of the deceased members, yet realize the fact that it is incomplete, for the reason that it has been exceedingly difficult to obtain correct and reliable data.

Respectfully submitted,

WM. F. HOLT,
Chairman of the Committee on Necrology.

April 17th, 1901.

IN MEMORIAM.

Dr. William Duncan.

Born Savannah, Ga., January 4, 1840, died Savannah, Ga., December 27, 1900.

On the 27th day of December, 1900, after an honored and useful life, and at the close of a successful career, passed away Dr. William Duncan, in his sixty-first year, not only skilled in the profession to which we devote our best years and energy, but full of the kindliness and sympathy which belong to no profession exclusively, but make us hopeful of higher and better things beyond that threshold at which the genius of our calling stops helplessly.

Dr. William Duncan was born in Savannah, Ga., January 4, 1840. He was educated at Chatham Academy, Springfield Academy and Oglethorpe University, Georgia. He graduated in medicine from the Savannah Medical College in March 1861, and the Rotunda Lying-in Hospital, Dublin, in 1865. Besides the above he studied in King's College Hospital, London, and in Paris hospitals in 1865-6, settling in Savannah the latter year. He was a member of the State Medical Association of Georgia, and of the Georgia Medical Society; he was treasurer of the latter in 1867, and the vice-president in 1877. He was demonstrator of anatomy in the Savannah Medical College in 1867, and a few years later held the chair of Pathological Anatomy, and from 1872 to 1881 was dean of the faculty. For twenty years he was chief surgeon of the Savannah, Florida and Western Railroad; for over thirty years superintendent and one of the managers of the Savannah hospital; and from 1870 to 1888 was secretary and treasurer of the Georgia Infirmary. During the four years of the Civil War he was assistant surgeon in the Confederate States Army, and served in the field in the hospitals at Savannah, Ga., and Harrisburg, Pa., and Richmond, Va. He was an alderman of the city of Savannah for twelve years, and a member of the Board of Sanitary Commissioners of that city. His practice was general but largely appertained to surgery and obstetrics.

He was elected a member of the State Legislature for the term of 1896-7. In 1900 he was appointed by Governor A. D. Candler a member of the Board of Commissioners of the State Lunatic Aslum, at Milledgeville, Ga., which position he still held at the time of his death.

He was in all respects a man, gentle, lovable, brave, devoted and loyal. Filling many offices to which the confidence and esteem of his fellow citizens had called him, his record was one of integrity and ability.

But his claim upon us rests not alone upon his civic positions. He was first and foremost a practitioner of medicine. At every call, in every crisis, in rain and storm, in peace and war, in health and pestilence, in prosperity and adversity, his prompt action, his swift step, his hopeful and courageous presence, meant all that any human being could put into human action when men are summoned.

In these days of commercialism it is encouraging to see the heart touched with real sorrow, and the personal force of a common loss reflected in a community at large. Dr. William Duncan was a man whose character appealed to all living forces in the community in which he lived and died. His sweetest traits were his humaneness, his exquisite tact, his personal sympathy with all suffering, mental and physical, and the power of manifesting those traits with eye and word and action. Men loved him for his manliness; women for his gentleness. The noble heritage of a well-spent life is his legacy, his cross was only the futility of human endeavor, his crown the loving memory of a long line of devoted men, women and children. He was absolutely free from mummery and cant, but filled with practical sensible thought expressed in deeds, a true Southern gentleman, "Sans Peur et Sans Reproche."

In these simple words of affectionate remembrance let us put on record our respect and admiration for one who was not only a comrade and a friend, but a help to the friendless and an ornament to a profession which stands before the world for all that is best and self-sacrificing in our noble natures.

W. W. OWENS, M.D.

Savannah, Ga., April 15, 1901.

DR. WILLIAM O'DANIEL, of Bullard, Ga.

Another one of "The Old Guard" has passed over the river into the great unknown. One by one, as we go down the sunset side of life's journey, the last bood-bye must be said, and we enter the eternal beyond.

More than thirty years have gone by since the writer first entered the profession as a mere stripling, and one of the first to extend to him the warm grasp of fraternal welcome was Dr. O'Daniel; and through these years the ties of friendship have only ripened and mellowed by age; and it is no wonder that I esteem it a sweet, sad privilege to bring this humble tribute to his memory to be placed among the archives of the Medical Association of Georgia.

Our brother was an exception to the old law that "a prophet is not without honor save in his own country." He was born and raised in Twiggs county, in this State, and it was in his own

county that he devoted the best energies of his useful life to the duties of his chosen profession, and no man in his county occupied a warmer place in the hearts of his people, or enjoyed more their confidence and esteem. He was born May 2, 1838. His father was Daniel O'Daniel, and his mother was Louisa Murphy.

He received his literary education at Auburn Institute, from which he was elected principal of Marion Academy, where he taught school for several years. He began the study of medicine under Drs. Richardson and Zachery in 1859;taking his first course at the Medical Department of the University of Georgia at Augusta in 1865, and graduated M.D. from Atlanta Medical College 1866. He received the *ad eundem* degree M.D. from Medical College of Georgia in 1871; the honorary degree A.M. from Emory College in 1872; graduated Ph.G. from the Atlanta School of Pharmacy 1876; and received an honorary degree of M.D. from the Kentucky School of Medicine at Louisville in 1885.

He commenced the practice in 1866 at Bullards, Twiggs county, and was in active practice at this place until April, 1891, when he was appointed by Governor Northen as Principal Physician to the State Penitentiay, with headquarters in Atlanta; and filled this place with credit to himself and to the entire satisfaction of the State officials for several years. At the expiration of his official term in this department, he retired to his first love, and again took up active work in the community that gave him birth, and was a busy man up to the time when he laid aside the toga of his calling and went up higher.

Few men in the profession were ever more devoted to its duties, or did more work than did Dr. O'Daniel, and while he did the cream of the practice in his county and surrounding counties, the poor found in him a true friend, a faithful physician, and a wise counselor. The chilling snows of winter, the heated breath of summer, or the rains-storms of spring and autumn, were never considered for a moment when the calls from "God's poor" came to his door, but like the "Great Physican." he was constantly found "going about doing good."

The Medical Association of Georgia had no firmer friend, or more active and zealous member than he; and few, if any, of its members contributed more valuable papers, as the Transactions for years will show, than did Dr. O'Daniel. The association reognized him as one of its most valuable members, and bestowed upon him its highest and most trusted honor. He was treasurer of the association from 1871 to 1877, when he was asked to take a higher seat, and was made president of the association for the succeeding year. He was permanent member of the American Medical Association; member of the National Association of

Railroad Surgeons; was member in attendance of the Ninth International Medical Congress, and a delegate to the Pan-American Medical Congress in 1893.

Not only in the professional ranks were the ability and worth of Dr. O'Daniel recognized, but the laity as well saw in him a safe and wise counselor, and hence he was called into the political arena by the constituency of his State Senatorial District, and he was chosen to represent the district in the Georgia Senate during the years 1875 to '77. In the Senate halls his ability was recognized by being placed upon important committees. He was fond of masonry, and was a member and Past Master of Twiggs Lodge No. 164. Also a member of Constantine Chapter No. 4, Macon, Ga., and of St. Omer Commandary No. 2 Knights Templar, Macon. And while he fully appreciated these earthly honors, the *highest membership* ever held in his active career, and the most honorable office ever conferred upon him, was his membership in the Methodist Church, and holding the office of steward. He largely gave Beech Spring Church to the denomination, and was one of its most liberal supporters. One of the sweetest joys of his life came from the fact of his consciousness of a higher life within him, and the hope of a better one beyond the conflicts of this life. The brightest legacy left to his family, and the one characteristic of his life that stands out with more emphasis than all others, was the fact that he was a *Christian*, an humble follower of "The Great Physician."

He married Miss Elizabeth M. Land in 1860, and it was ever a constant care and joy of his life to bring as much sunshine and happiness into his home as possible. He loved his family with all the ardor of a buoyant nature. Six children blessed his home circle, only three of whom survive him, Dr. Mark H. and Dr. William A., and Mrs. Mattie O'Daniel Smith, wife of C. C. Smith, late judge of the Oconee circuit.

Dr. O'Daniel was always fond of agriculture, and in addition to a large practice, he conducted a large farming interest, and found time in the midst of his busy professional duties, to encourage and build up those engaged in the humble pursuit of tilling the soil. In every walk of life he will be sadly missed; in the professional ranks, in the church, among the farmers, with the laborers, in the sick-room, whether with the rich or poor, the cheerful face and genial happy nature of Dr. O'Daniel will be sadly missed.

Farewell dear brother "till we meet again" on the other side.

K. P. M.

Macon, Ga., April 12, 1901.

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DR. W. A. MEANS, Hendricks, Ga.

Dr. W. A. Means was born in Upson county, Ga., January 25, 1849. He spent his boyhood in the adjoining county, Monroe.

Dr. Means graduated at the Southern Medical College, Atlanta, Ga., in 1887, and continued actively in the practice till about a year before his death, when he was confined to his room by disease. He died August 21, 1900, of Bright's disease. He was deeply in love with his profession and was untiring in his efforts to do his full duty in this most noble calling.

C.

DR. REUBEN B. NISBET, Eatonton, Ga.

Dr. Reuben Battle Nisbet, son of Eugenius A. and Amanda Battle Nisbet, was born at Madison, Ga., February 6, 1830, and died at Eatonton, Ga., April 10, 1901, at the age of seventy-one.

He was an alumnus of Oglethorpe University, and soon after graduating began the study of medicine in the office of Dr. Abner F. Holt, in Macon, Georgia, and it was during his pupilage as an office student that the writer of this memorial tribute learned to admire and appreciate his sterling worth and many noble traits of character. He was of a genial nature and sunny temperament, and had the happy faculty of making friends with all with whom he associated.

After his office pupilage was completed he attended a course of lectures at the Jefferson Medical College at Philadelphia, after wards graduating at the Medical College of Georgia, at Augusta. Soon after obtaining his diploma he began the practice of medicine at Macon, Georgia, being associated with the late Dr. C. B. Nottingham, which co-partership continued until his removal to Eatonton, Ga., when he was associated with Dr. Joel Branham. Here he lived and practiced his profession to the day of his death. Probably no man possessed more the love and confidence of his clientele than Dr. Nisbet, as was attested by his large and lucrative practice. He was twice married, first to Mrs. Martha A. Grimes, *née* Dennis, second, to Mrs. Martha A. Nisbet, *née* Dennis, who were first cousins. He leaves a wife and three children.

When the tocsin of war sounded he tendered his services as captain of the Brown Rifles, of Putnam County, Ga., to the Confederacy. A more gallant and braver soldier never lived. He was the idol of his command, and they were ever ready and willing to follow when he led. He was soon promoted to the colonelcy of the 3d Ga. Regiment and participated in the battles of Malvern Hill and those around Richmond, and at Sharpsburg. At the lat-

ter he was severely wounded and left for dead on the battlefield. Captured and taken to Hagerstown, Md., where he remained three months before being paroled.

After the surrender of Lee's forces, he returned to his old home in Eatonton, Ga., and with his advice and counsel materially aided his fellow citizens in building up their shattered fortunes.

He was active, energetic and public-spirited, had great influence with his neighbors and citizens, and his advice and counsel was always sought after in many enterprises when his town and country were involved. He was popular with all classes, as endorsed by the numerous public offices which he held. He was a member of the Board of Trustees of the Georgia Sanitarium, of the Democratic Executive Committe and a member of the Constitutional Committee of 1877, of the County Board of Education, and trustee of the Eatonton Academy. He was a prominent Mason, Master of Rising Star Lodge, and was Grand Senior Deacon of the Grand Lodge of Georgia; was also commander of the R. T. Davis Camp of Confederate Veterans. He was honest and faithful to every trust committeed to his keeping.

With his exacting professional work and numerous public duties, he found time to serve his Lord and Master; was a faithful and consistent member of the Presbyterian church; a leading elder for twenty-five years.

A good citizen, devoted husband, fond father, true friend and brave soldier, his life and example is worthy of emulation.

WM. F. HOLT, M.D.

Macon, Ga.

ASA W. GRIGGS, M.D.

Aet. 71.

The subject of this imperfect but loving tribute, was no ordinary man. His personal appearance bore a strong resemblance to the accredited pictures of Hippocrates; in figure and dress and in love of truth, he was strikingly like Judge Logan E. Bleckley, and as a philosopher he reminded you of the fearless Socrates. The "father of medicine" did not love his calling more than did my father in medicine, A. W. Griggs, his chosen avocation.

Judge Bleckly, when he wrote the Phanton Lady, meaning from his viewpoint the Law, expressed, as I have heard Dr. Griggs often say, "more beautifully and fully than it was ever penned before my love and idea of the healing art." I am sure it will be pleasing to his shade to incorporate here this exquisite gem, doubly, trebly, appropriate, coming as it does from the nestor of the law, applied to the nestor of medicine in Georgia.

THE PHANTOM LADY.

"O lady! lady! lady!
  Since I see you everywhere,
I know you are a phantom—
  A woman of the air;

I know you are ideal,
  And yet, you seem to me
As manifestly real
  As anything can be.

O soul-enchanting shadow!
  In the day and in the night,
As I gaze upon your beauty,
  I tremble with delight.

If men would hear me whisper
  How beautiful you seem,
They should slumber while they listen
  And dream it in a dream;

For nothing so exquisite
  Can the waking senses reach;
Too fair and soft and tender
  For the nicest arts of speech.

In a pensive dreamy silence
  I am very often found,
As if listening to a rainbow
  Or looking at a sound;

'Tis then I see your beauty
  Reflected through my tears,
And I feel that I have loved you
  A thousand thousand years."

I have known Dr. Griggs to sit up literally all night and discuss medical theories. He often went for a week without changing his clothing, nursing a critical case. Frail as he was, few men had greater physical endurance. He was six feet two inches tall, but never weighed over 140 pounds,

Socrates said "no evil could befall a good man here or in the world to come," nor cared he for worldly ease, and he abhorred money-getting. I once upon a time called his attention to a life insurance pamphlet that had as its motto, "A good man leaveth an inheritance." His comment was, "True, but an inheritance of what? In explanation, further on you will read that the same writer, Solomon, said, 'A good name is rather to be chosen than

great riches,' and to bequeath my children a spotless reputation concerns me more than leaving them gold and silver." Sleep on, sleep sweetly--grand old man—for there is not a stain upon thy fair escutcheon. William Prince of Orange, the greatest man of his time, Macaulay tells us, never drew a breath free from pain, was weak of body, but animated by a spirit that made him forget his material body and accomplished wonders. Dr. Griggs was a frail, delicate boy. He, as will be stated later, went to Franklin College, and but a few months before his graduation was compelled to leave on account of his health. He was confined to his bed for twelve months, but during all this time his mind was active. He had begun the study of law, but philosopher that he always was, studied his own case from the medical library of his name-sake, an uncle. Dr. Asa Griggs, and to this circumstance are we indebted for his becoming one of us, an ornament to our profession, a benefactor to his race. He was to the last very fond of the classics, especially Greek, and by constant reading, or communing with the old masters he never forgot them. As an illustration of his kindliness of heart, I recall that he once said to me when I was a boy, "One of the greatest pleasures I get from not forgetting my Latin and Greek, is that it makes you children love to come to see me," and he spoke truly, for in those days, the hickory was the penalty of not knowing a lesson. We got no punishment after an interview with him, for oh, how kindly, gently, carefully and cheerfully did he parse and translate for us. When I first saw, or rather remember, this remarkable man, for he was my father's family physician, it was generally conceded that he was in the last stages of consumption, yet he lived, wrote and worked for fifty years thereafter.

He taught school for several years while attending medical lectures, and graduated from the Medical Department of the University of Nashville with first honor in 1855. Soon thereafter he became Professor of Surgery in the Oglethorpe Medical College, at Savannah.

The following clipping, with wood-cut, from the Constitution, shows that when he died all Georgia mourned the death of this Alabama doctor, probably the only physician who was ever the president of a State society in which he did not reside.

West Point, Ga., August 16.— (Special.)—Dr. A. W. Griggs died to-day at 12 o'clock. He has been an honored citizen of West Point since 1857. He was prominently connected with the school interests of our town for many years. While he was a resident of Chambers county, Alabama, being a liner did not prevent his influence being exerted to the furtherance of the town's welfare. While he represented Chambers county in the

general assembly he was the framer of the celebrated educational bill, which he fortunately carried through, and remains to-day an honored monument to his high intellectual ability.

Dr. Griggs was a natural physician. It was in that sphere wherein he shone with brilliant luster. His gentle manners, while administering to his patients, can be attested by myriads who had occasion to fall under his sweet and kindly care. That he was recognized as a live and progressive physician is borne out by the fact that he was chosen on different occasions to fill the offices of the Georgia State Medical Association, from orator to president. He was for years professor of principles and practice of medicine in the Atlanta Medical College.

Dr. Griggs was born on Murder creek, Putnam county, in 1827. He received his education at old Franklin College, now the University of Georgia. He was first married to Miss Elizabeth R. Davenport, by whom he had two children, Persia and Dr. J. W. The latter only survives him. After the death of his first wife he was wedded to Miss Lois A. McCants, to whom were born five children. All survive him—Miss Carrie Lou, Dr. Robert Steele, Asa W., Miss Lois, Imogene and Dr. Alfred F.

His death is truly a calamity to the community in which he has resided so long. Among his brilliant talents none glittered more prominently than his gifted oratory. Many times golden words were uttered by him on some celebrated occasion, whether in the legislative halls or in medical societies he was a ready as well as a magnetic and eloquent speaker."

He was not only scholar, philanthropist, teacher, law-maker and orator, but patriot, for when Georgia called for her sons in '61, delicate as he was, he was one of her first to say, Here am I! But he was assigned to be surgeon of the 33d Ala., (as he lived just over the line) 5th brigade, Hardee's division. He soon broke down performing the arduous duties required in the field, but would not resign, and was thereupon sent from Tupelo, Miss., to be placed in charge of the Concert Hall Hospital in Atlanta, and so far regained his health in a short time, that we next hear of him as a surgeon under Forrest and Bragg and Johnston. He served until the last shot was fired, wept over the results, surrendered, but was never ashamed and offered no apology!

Dr. Griggs had an original mind. He was equal to any emergency. He devised from the steel of an umbrella cover, on the spur of the moment, the first uterine currette I ever saw or heard of. He thereby stopped from flooding, probably fatally, by removing the adherent placenta, our patient. With the crudest appliances he performed successfully operations from cataract to lithotomy. He never became too old to learn. His greatest pleas-

ure was in attending the medical lectures whenever he could spare the time, in Atlanta, Mobile, New Orleans, Baltimore, Philadelphia and New York. The penalty he paid was that the professors in these institutions always made him lecture for them to their classes. His general information on all the collateral branches of medicine was truly encyclopedic. His manner easy, modest; his illustrations apt; his wit side-splitting, for a better recontour I have never known; his oratory and word-painting holding the attention of all within the spell of their influence.

He often jumped at conclusions intuitively, for instance, he was one of the first physicians, old or young, among us, not only to preach, but to practice antiseptic surgery, because, said he, "it is the truth."

He wrote for the journals, but unfortunately they are not preserved. He was especially interested in and wrote numerous articles on the reflexes. He said to me once: "Yes, of course Gitteau, the murderer of Garfield, was insane, but the pathological change was not seated in his brain primarily; why don't the pathologist tell us if he had an adherent prepuce: the genital organs, and not the brain of this man were the ones to be examined." He wrote of veratrum-viride—"swiftest courser in all the field" he called it—of phlebotomy; counter irritation; puerperal eclampsia; cholera infantum; non-heredity of phthisis when it was believed that heredity was a *sine qua non* in its causation; he wrote poetry, and not only loved music, but performed exquisitely on the violin and flute. He was a sincere, ardent, trusting, believer in the good Physician; he kept his new commandment, "love one another," and I feel sure that when he fell asleep he was met on the other shore by Him, with the welcome word, "I was sick and ye visited me," for he never refused a charity call. He had love and charity for everything and excused all the weaknesses of his fellows, not only their foibles, but their sins—except one, quackery:—the pretender and deceiver he could not in the purity of his great, noble, loving, kind heart receive. They were incompatible with his make-up, and to him it would have been in violation of the law of God—Truth—to have affiliated with the charlatan.

I was his student, always his friend, once his partner, and know that he loved me, which I account one of my greatest achievements, for he asked me to write this notice of his death when he was "gone hence," for the Transactions. "You know me better than any one alive; but take care, my boy, write nothing but the truth about me." To show how he was loved in his own family circle, I quote from a letter I received from his daughters recently:

"I am sorry that I can not tell you more of his early life. He had the first high school that was in Atlanta, and prepared many of the prominent men for college. I wish I could give you their names, but do not remember them. Governor McDaniel was one, Henry R. Persons another, and I have heard him mention many of them and am sorry I cannot recall their names.

"We were great friends and had much pleasure together. I have listened for hours to his speeches and different things he would write, and was never tired. If I were to try for the rest of my life I could never tell you how proud I am of him or how much I love him.

"When the association meets every year I shall think of you all, so long as I live, and I trust that his dear name will be mentioned by some who loved him, and in after years by some who will learn to love him when they know of his beautiful life so full of sacrifices not many are willing to make.

"He loved the association and was proud to be a member of it. He enjoyed being with the 'doctors.' I love it, too, and pray that God will bless every member and give them long and happy lives.

"I must ask you to excuse such a hastily written letter, but I could do no better; having several friends to see me, I have had very little time to devote to this. I will let you know if the boys send me the facts you wished.

With much love from us both for you, our dear friend, we are,

Sincerely,

(Signed) Carrie Lou Griggs, Imogene Griggs."

Dr. Griggs was a magnificent type of the old family doctor—the physician who knew something about every thing, but who, as a class, like the veterans, are passing rapidly away, their places being filled by the specialist, the modern, who know everything about something. This is probably as it should be, as progress and humanity is the gainer, but the individual members of our calling cannot in the very nature of things ever hope to attain to the eminence that they achieved. The days which gave us such men as were Gross, Flint and Griggs will soon be no more, but Georgia is fortunate that the mantle of the latter falls gracefully and naturally on the shoulders of our new nestor, Dr. J. McFadden Gaston. Long may he live to cheer us by his loving presence and wise counsels!

I am happy in closing this memorial to truthfully say that the "evil" which Dr. Griggs did "was buried with his bones," and

that the "good lives after him," an inspiration to the young of our land, a beautiful example of the fact that,

"Lives of great men all remind us,
That we may make our lives sublime,
And departing leave behind us
Footprints on the sands of time."

J. S. TODD.

The President appointed, as an Auditing Committee, Drs. W. F. Westmoreland, Howard J. Williams and L. G. Hardman.

On account of the barbecue to be given to the Association in the afternoon, the meeting adjourned until 8 p m.

SECOND DAY—NIGHT SESSION.

The Association reassembled at 8 p. m., and was called to order by the President.

The President announced that the Georgia Pharmaceutical Association had elected three delegates to the Medical Association of Georgia, with a view to encouraging friendly relations between the two Associations, and also for mutual benefit, and that Dr. Geo. F. Payne, of Atlanta, as one of those delegates, was present and would state the wishes of the Pharmaceutical Association.

Upon being called upon, Dr. Payne responded as follows:

Fellow Members of the Georgia Medical Association:

I simply wish to speak a few words in regard to the matter in hand as a member of the Medical Association of Georgia and the Pharmaceutical Association of Georgia. I am present as one of the three delegates appointed to appear before you. There are two subjects about which I was instructed to speak, and I would like to have you act upon them separately.

The first one is the request that you appoint one or more delegates to represent this Association at each meet-

ing of the Georgia State Pharmaceutical Association, and the Pharmaceutical would elect one or more to represent them at your meetings. The object is to bring about a better felowship and some discussion of the needs of the times between the two professions.

The other request of the Georgia Pharmaceutical Association is that the Georgia Medical Association appoint a committee of three to unite with a similar committee from the Pharmaceutical Association, and they to devise a book, or rather to adopt a set of formulæ of the various preparations as prescribed; in other words, to have for us a Georgia Formulary belonging to the two Associations jointly.

I do not think it necessary to have separate delegates for the two matters, but I think it best to act on the two separately.

This was discussed favorably by Dr. Slack, and he moved that the Association appoint three delegates to attend the meeting of the Pharmaceutical Association, and that they report back to the Medical Association before taking any action.

Motion seconded and carried, and the President appointed the following delegates to the Georgia Pharmaceutical Association: Drs. H. R. Slack, K. P. Moore, and V. O. Hardon.

Dr. J. H. Bradley, of Dublin, read a paper on "The Importance of Proper Management of the Third Stage of Labor; the Cause and Treatment of Some Forms of Hemicrania," and was discussed by Dr. L. H. Jones.

Dr. S. A. Visanski, of Atlanta, contributed a paper on "Infant Feeding," and exhibited apparatus for preparing the food.

Dr. Wm. Z. Holliday, of Augusta, presented a paper entitled "Bottle-Fed Babies."

Dr. Adair, of Harmony Grove, read a paper, by invitation, on "General Hygiene of the Teeth."

On motion, a vote of thanks was tendered Dr. Adair for the paper read by him.

The President stated that the program of papers for the day had been completed, and that as there were one or two gentlemen present who were absent the day previous, when their papers were called for, that reading of those papers would now be taken up.

Dr. M. B. Hutchins, of Atlanta, read his paper on "The Treatment of External Cancer with Caustic Potash."

On motion, the Association adjourned until 9:30 a. m. Friday.

THIRD DAY—MORNING SESSION.

The Association met at 9:30, and was called to order by the President.

On account of the previous night's session, the reading of the minutes was dispensed with.

Under reports of special committees, Dr. J. Lawton Hiers read the following:

We, the committee, continued from your last meeting which had been previously appointed to confer with the medical societies of other states, inviting their co-operation in a memorial to Congress, asking an increase in the rank, pay and allowance of the Surgeon General, of the United States army, beg leave to report as follows:

As previously reported, we sent out about 125 copies of our resolution to the other medical societies, and we are pleased to state that favorable action has been taken on same by the American Medical Association, and many other State and Tri-State Medical bodies.

We have also placed the resolutions in the hands of the president of the United States, the secretary of war, and the different members of the Senate and House of Representatives in Congress from Georgia.

The bill which your committee had drawn, asking that this increase of rank, pay and allowance become a law, was presented

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in the House of Representatives on April 26th, 1900, by Congressman Lester, of Savannah, Ga., and referred to the Committee on Military Affairs; but on account of the many important things which came before this committee, we were not able to have definite action taken on the same, at the last session of Congress; but with a united effort on the part of the medical men of the United States, we hope to do so at the next session of congress.

We attach to this report an itemized bill of expenses, for cash actually paid out, which we ask that you have audited and ordered paid. It might not be amiss for us to mention that a bill has already been passed by Congress, increasing the rank and pay of the Adjutant-General of the United States Army to that of a Major-General, whose duties are certainly no more onerous than the Surgeon-General's. We have been informed by good authority that the Surgeon-General of all the European countries that maintain an army—even the Surgeon-General of Holland—with an army of only 22,000 soldiers, enjoys the rank equal to that of a Major-General.

We would respectfully suggest the wisdom of continuing a similar committee to push this important and deserving matter to a final conclusion.

(Signed) J. LAWTON HIERS,
J. B. S. HOLMES,
R. J. NUNN.
Committee.

Dr. Kime moved that the report of the committee be adopted, and that they be reimbursed for expenses incurred. Motion carried.

Dr. T. O. Powell, of Milledgeville, read a paper entitled "Marriage and Heredity; Its Relation to Insanity."

As the next two papers were along the same line as this one, it was decided to postpone the discussion until all had been read and then discuss them together.

Dr. W. L. Champion, of Atlanta, then read his paper on "Venereal Diseases; Their Prevention."

Dr. R. R. Kime, of Atlanta, presented a paper on "Some Social Problems."

These papers were discussed by Drs. Baird, Williams, Hardman, Spratling, Chason, and Drs. Champion and Kime in closing.

In closing the discussion on his paper, Dr. Kime introduced the following:

Resolved, That a committee of three members of the Medical Association of Georgia be selected as a Sociological Committee to work in conjunction with a similar committee from the Tri-State Medical Society. Said committee to report to this association from year to year on work accomplished.

Carried. President appointed on this committee Dr. R. R. Kime, chairman; Drs. C. H. Peete and A. A. Smith.

Dr. Michael Hoke, of Atlanta, contributed a paper on "Pronated Foot," and exhibited apparatus to demonstrate treatment.

The President then called for the report of the Treasurer. Dr. Goodrich, the Treasurer, stated that the auditing committee had his books, and for this reason he was unable to make a report.

The President called for the report of the Auditing Committee, which had been continued from the meeting of last year as a special committee to examine the books of the Treasurer and report at this meeting.

Dr. Howard J. Williams, of the Auditing Committee, read as the report of the Committee a statement prepared by Mr. A. L. Waldo, an expert accountant employed by the Committee. Mr. Waldo had gone over the books of the Treasurer from 1882 to the present time. He stated that there were errors and discrepancies in the Treasurer's accounts.

As the Auditing Committee was continued and given full authority to make a final settlement with the Treasurer, the full report of the Committee will not be made until April, 1902.

The President: You have heard the report of the Auditing Committee. What disposition shall be made of it?

Dr Foster: I move that Dr. Goodrich be heard from in this matter.

Motion seconded and carried.

Dr. Goodrich then came forward and spoke as follows:

Mr. President and Gentlemen:

I must say that during the last seventeen years it has been my habit at each meeting to turn my vouchers and books over to the Auditing Committee; that committee looked them over and gave me credit for them and wrote O. K. on my books, and so signed the Committee's report. After that I did not keep any of my vouchers, after the books were O. K.d, as I thought that was sufficient and did not believe that the report would ever be gone back of. If I had known this, I would have kept the vouchers, but I did not believe that necessary. As to this amount of $277.00, or something like that, that I reported as paid by members, I can not answer that as I have nothing to go on to check up, as all vouchers were destroyed. But I am satisfied that each time I made proper reckoning to the Association. As to the $926.24, with all due respect to Mr. Waldo, I would say that I had three expert accountants in Augusta to examine the books, and they said that the charge was correctly put on my books and that the Association received that amount. This is all that I have to say, and I am willing to stand by my record.

It was moved and seconded that the report of the Auditing Committee be adopted.

Dr. Foster opposed its adoption on the ground that it would be doing Dr. Goodrich an injustice, as he had had three expert accountants to examine the books and they pronounced the account correct, while the Auditing Committee based their report upon the opinion of one man.

Dr. Westmoreland called attention to the fact that the experts employed by Dr. Goodrich had examined the books

for only one year, while the expert employed by the Auditing Committee had gone thoroughly over the books from 1882 to the present time.

The matter was then discussed at length by Drs. Westmoreland, Foster, Williams, Kime, Jones, Benedict, Hardman, Spratling and Graham, but nothing definite was decided before one o'clock, at which time the President announced that the hour had arrived for the election of officers, as provided by the Constitution, and therefore the consideration of other matters would have to be suspended.

Before proceeding with the election of officers, the President stated that it would be in order to vote upon the adoption of the amendment to Section 1, Article III, of the Constitution, which was introduced at the last meeting of the Association, and was as follows:

That Section 1, Article III, of the Constitution, be amended so as to read as follows:

Section 1. The officers of this Association shall consist of one President, two Vice-Presidents, one Secretary and Treasurer, and five Censors.

2. That the word "each," following the words Secretary and Treasurer of Section 2, Article III, be stricken.

3. That Section 5, of Article VI, be stricken.

4. That Section 3, of Article VII, be stricken, and that in lieu thereof we adopt the following:

Article VII, Section 3. That the sections of the Constitution, defining the duties each of the Secretary and Treasurer, continue to apply to the office of Secretary and Treasurer.

Article VII, Section 4. The Secretary and Treasurer shall receive as compensation for his services the sum of $300.00 per annum, which shall be paid out of the funds of the Association; and that said Secretary and Treasurer shall give bond in the sum of $1,000.00, payable to the

Georgia Medical Association, for the faithful performance of his duty.

The amendment was adopted.

The election of officers was then proceeded with, and resulted as follows:

President, Dr. Jas. B. Baird, of Atlanta.

First Vice-President, Dr. Thos. R. Wright, of Augusta.

Second Vice-President, Dr. J. D. Chason, of Bainbridge.

Secretary and Treasurer, Dr. Louis H. Jones, of Atlanta.

Censor, Dr. W. H. Doughty, Jr., of Augusta.

Dr. Westmoreland announced that if the matter of the Treasurer's account be left with the Auditing Committee, that he thought they would be able to arrive at some satisfactory settlement.

On motion the Association adjourned until 3:30 p. m.

AFTERNOON SESSION—THIRD DAY.

The Association reassembled at 3:30 and was called to order by the President.

Dr. J. C. King introduced the following resolution, which was unanimously adopted:

Resolved, That the Medical Association of Georgia extend to Dr. Benedict a vote of thanks for the able manner in which he has presided over the sessions of the association.

The President called for the report of the Auditing Committee, and Dr. Westmoreland stated that they had not yet reached any settlement with the Treasurer, but that if the Association would give them more time and sufficient latitude to cover the case, that they could reach a settlement.

Dr. Louis H. Jones then introduced the following:

That the hearty thanks of the Association be tendered the Auditing Committee for their very efficient and faithful services during the past year; that the committee be contin-

ued with full power to act, and that such settlement as they see fit to make between the Association and the Treasurer, Dr. Goodrich, will be entirely satisfactory to the Association.

This was seconded and carried.

Dr. J. B. Morgan moved that the Auditing Committee be reimbursed for any expenses they may have incurred. Carried.

Dr. J. Lawton Hiers extended a hearty invitation in behalf of the Georgia Medical Society of Savannah for the Association to meet at that place next year.

The President announced that the medical profession of Rome Ga., had also extended a cordial invitation for the Association to meet at that place.

On motion of Dr. Westmoreland, the Association selected Savannah as the next place of meeting; the third Wednesday in April, 1902.

Dr. Foster moved that the Auditing Committeee be allowed to make their report after the sessions of the Association, so as to have it in the Transactions. Motion was carried.

Dr. Foster called attention to the fact that the President-elect, Dr. Baird, was Chairman of the Committee on Medical Legislation, and in view of the fact that he did not know of any man who could supplant Dr. Baird, he therefore moved that Dr. Baird be continued as ex-officio Chairman of the Committee on Medical Legislation. Motion carried.

Dr. Westmoreland moved that the Secretary and Treasurer, Dr. Jones, be allowed to settle such vouchers as had been signed by the President, Dr. Benedict, but which had not been paid by the Treasurer, Dr. Goodrich. Motion carried.

INSTALLATION OF OFFICERS.

In retiring, Dr. Benedict thanked the chairmen and members of the various committees for the valuable assistance which they had rendered, calling special attention to the work of Dr. Baird, as Chairman of the Committee on Medical Legislation. He then introduced Dr. Baird, who was escorted to the chair amid applause.

The President appointed the following delegates to the American Medical Association:

Jas. B. Baird,
M. F. Carson,
Geo. A. Wilcox,
W. D. Travis,
St. J. B. Graham,
J. L. Hiers,
W. E. Fitch,
W. H. Elliott,
R. P. Izlar,
S. C. Benedict,
H. M. Fullilove,
D. D. Quillian,
A. W. Calhoun,
Geo. H. Noble,
W. F. Westmoreland,
V. O. Hardon,
F. W. McRae,
L. G. Hardman,
J. W. Bailey,
T. M. Baker,
W. H. Doughty, Jr.
Thos. R. Wright,
T. D. Coleman,
Hugh Burford,
T. H. Caldwell,
F. W. Coile,
J. D. Chason,
W. B. Cheatham,
P. R. Cortelyou,
R. P. Cox,
H. B. McMaster,
T. M. McIntosh.
Jeff Davis,
O. L. Deadwyler,
B. R. Dostor,
W. L. Fitts,
Eugene Foster,
T. R. Garlington,
J. H. Gheesling,
W. C. Griffin,
F. M. Ridley,
Geo. J. Grimes,
Thos. M. Hall,
J. A. Guinn,
E. L. Jelks,
N. P. Jelks,
H. J. Williams,
J. F. Lancaster,
J. A. Liddell,
L. P. Eberhardt,
Chas. Hicks,

Dr. Baird briefly thanked the Association for the honor conferred upon him, and then proceeded with the reading of papers.

The next paper on the program was by Dr. T. E. Oertel,

of Augusta, entitled, Yellow Atrophy of the Liver, with Report of a Case.

Dr. Oertel stated that as the time was short, and there were some present who came some distance to read their papers, that he would simply read his paper by title.

Dr. Henry R. Slack, of LaGrange, contributed a paper on Hydrophobia, Its Prevalence and Prevention.

This paper was discussed by Drs. Foster, Westmoreland, Graham, Spratling, and Claude A. Smith.

Dr. Jas. T. Ross, of Macon, read a paper entitled Tetanus—Report of a Case; Intubation. This was discussed by Drs. Graham, Holt, Foster and Jones.

Dr. T. Virgil Hubbard, of Atlanta, presented a paper on The Antiseptic and Eliminative Treatment of Typhoid Fever, but it was not discussed for lack of time.

Dr. Foster moved that, on account of the lateness of the hour, the following papers be read by title. Motion carried.

Types of Smallpox, by Dr. Eugene Foster, of Augusta.

Some Observations in a Series of Fifty Cases of Malaria, by Dr. E. E. Murphey, of Augusta.

Malarial Neuritis, by Dr. St. J. B. Graham, of Savannah.

A New Discovery in the Treatment of Chronic Diseases Dependent Upon Cell Changes, by Dr. J. Cheston King, of Atlanta.

Dr. Westmoreland moved that the Secretary be paid an honorarium of $150. Motion carried.

Dr. Foster moved that the Treasurer be paid an honorarium of $150. After some objection this was finally carried.

On motion of Dr. Louis H. Jones, Dr. Claude A. Smith was selected as the official reporter for the Association, and to receive $100.

Dr. Westmoreland moved that a vote of thanks be ten-

dered the medical profession of Augusta for their generous entertainment of the Association.

The motion was unanimously carried.

Dr. Hiers introduced the following:

Whereas, The members of the Medical Association of Georgia are put to no little inconvience in securing and having properly signed the certificates granting us one and one-third railroad fare; and

Whereas, Many of our members living in inaccessible parts of the State are not even able to secure the certificates from the station agent giving them the usual reduction, thereby forcing them to pay full fare at least to some more central point; and

Whereas, These hardships operate in a manner to greatly reduce the attendance and materially lessen the scientific work which should be done at our meetings; be it

Resolved, first, by the Medical Association of Georgia, that the Southeastern Passenger Association be requested to grant to our members one fare for the round trip when attending the annual meetings of the Association;

Resolved, second, That a special committee of three be appointed to carry out the purposes of the foregoing resolution.

Resolution was adopted.

The President appointed on this committee Dr. J. L. Hiers, Chairman; Dr. H. J. Williams and Dr. Geo. H. Noble.

The Board of Censors recommended that Dr. R. L. Miller be restored to membership on payment of back dues, and that Dr. J. McF. Gaston, Sr., be placed on the roll of honorary members on account of his age.

On motion the Association adjourned, to meet the third Wednesday in April, 1902, at Savannah, Ga.

EXCISION IN TUBERCULOSIS OF JOINTS—HIP AND WRIST.

HOWARD J. WILLIAMS, A.M., M.D.,

Surgeon to the Macon Hospital, etc.; Ex-President to the Medical Association of Georgia, etc., Macon, Ga.

Tuberculosis of the joints, usually secondary to an epiphyseal osteo-tuberculosis, is a peripheral manifestation of the pre-existence of an invasion of other organs or tissues by the bacillus tuberculosis. As a direct primary infection, joint or bone tuberculosis is extremely uncommon.

Since this is true, it is also true that the primary focus of tubercle in the internal organs most frequently remains latent, while the greatest danger comes from the bone or joint lesion. Complete destruction of the joint usually resulting, the general system is exposed to septic infection from pus microbes lining old sinuses, important internal organs are subject to amyloid degeneration following prolonged joint suppuration, and important organs or tissues are victims of reinfection by the tubercle bacilli found in neglected cases. These cases of localized infection are particularly predisposed to the development of acute miliary tuberculosis, and many cases of old, neglected joint disease die annually from pulmonary invasion. Billroth says at least 27 per cent terminate in this way. Adults and those who have an hereditary tendency are more disposed to these sequelæ than children and those who have acquired tuberculosis; though no class is exempt from the dangers. Trauma not infrequently causes relapse or acute dissemination in cases apparenetly well for years.

Even the radical treatment of diseased joints is not always absolute protection against recurrence of tuberculosis in the lungs or other organs, for the susceptibility to the disease remains after operation. Konig observed miliary tubercolosis in sixteen cases out of one thousand operations. The writer recalls one case of rapidly fatal tuberculosis of the lungs developing within a few weeks after the removal of a tubercular nodule in bone. Nor are the remote results of operative treatment more encouraging, permanent recovery being rare. Verneuil says: "When we operate on an infected focus, be it oseous, articular, glandular or other tissue, there is great danger from auto-infection from the disturbed local center, the imprisoned microbes being liberated by the traumatism may enter the blood currents, and are deposited in various organs," and further on he says, "patients operated on for tubercular affections never reach old age."

The tubercular process is a multiple invasion, metastatic in its course, marked often by periods of latency, attended at times by suddhen dissemination, and whose intrinsic tendency is to ultimate death. Such being the character of the disease process, it seems to the writer that the unfortunate sequelæ occasionally observed after operation and the unfavorable remote results sometimes recorded should not be urged against operative treatment. May not some of the gloomy remote results charged against operative treatment be due to auto-infection from other foci of disease? and is it not possible that some of the cases of early reinfection were the results of imperfect operations? If left to themselves, these neglected joints are still centers of reinfection; while, as Warren says, the successful removal of the local focus will remove the danger of miliary tuberculosis starting from that point. Senn says, "This auto-infection from operative traumatism has been greatly overestimated; if proper precautions are practiced, it is cer-

tainly one of the rarest of wound complications. Waton-Cheyne, Tillmans, Park and Warren, all claim that local return of the disease shows that the operation has not been thoroughly performed. Furthermore, it should not be forgotten that the removal of a peripheral tubercular lesion has often had a curative effect on similar internal lesions by the suppression of reinfection from these foci. Recovery from pulmonary tuberculosis, with the disappearance of bacilli from the sputum, has been recorded following the radical treatment of joint tuberculosis; and beginning amyloid changes elsewhere have been known to yield to resection of local diseased points.

Later and more exact application of asceptic surgery, greater care now exercised against traumatic infection, and improved methods of operating have greatly reduced the risks of the operative treatment of these local affections. Early and efficient treatment, it seems to the writer, is therefore more urgent than ever in bone and joint tuberculosis. Conservative treatment should yield earlier to absolute wide removal of infected areas in bones and joints. It is unfortunate that these cases are ever allowed to go on to dislocation, joint suppuration and infected sinuses. These are the cases in which pulmonary infection most frequently develop, and in adults the late complications are more dangerous than the original bone and joint foci. After a brief but fair trial of milder methods of local treatment it is wiser to proceed to methods which are radical in their object and clean in their execution. Even in children, where it is desirable to employ the highest degree of conservatism, the removal of bony tissues should be limited to the structures outside of the epiphyseal cartilages, so as not to interfere with the future growth of the limb, if there are suspicious centers present beyond this line, the operation should embrace such foci. By early operation, fortunately, greater conservatism can be exer-

cised: the early removal of a focus in the articular end of a bone need not interfere with the function of the joint, nor will it result in the arrest of the development of the limb. The writer recalls a case in which, eleven years ago, he excised the middle cuneiform and the immediate synovial tissues for localized tuberculosis in a child two years of age; the child is now thirteen years of age and has a perfectly useful foot.

In the radical treatment of tuberculosis of the joints three procedures are open to the surgeon: arthrectomy, excision or resection, and amputation. Unfortunately these procedures, being regarded as mutilating operations, are usually undertaken after the joints are secondarily infected by suppurating sinuses, the articular ends of the bone broken down, and the general condition of the patient is almost beyond relief.

Of these operations amputation is the most radical, and though it gives the most efficient protection against reinfection, it should be reserved for the graver cases, those which have gone beyond the reach of arthrectomy and excision—cases having local tubercular infection, complicated by the presence of active pulmonary tuberculosis, advanced amyloid degeneration of internal organs, or pronounced anemia.

Arthrectomy, the removal of infected tissues, synovial or bony, with as little disturbance of the healthy surrounding structures as possible, is an operation introduced (at the Children's Hospital at Pillsbury in 1887) to replace excision in the early stages of joint tuberculosis. If the operation is confined to the careful removal with the knife, scissors and chisel, of infected tissues alone, and before fistulæ have formed, it is the ideal operation for these cases. By it the functions of the joints are preserved and the future growth of the limb is not disturbed. Owing to the great difficulty of reaching infected foci in such joints

as the hip, shoulder and ankle, it is not regarded as an operation of wide utility and is at present limited almost exclusively to the knee joint. Warren objects to arthrectomy in that it is not thorough enough, and that it fails oftener than excision in eradicating the foci of dissemination; statistics bear him out in this assertion.

Excision, the removal of all infected synovial tissues, together with more or less of the articular ends of bones, is the most universally applicable operation in tubercular joint trouble. If the operation is performed very early, an atypical resection can be performed, only a very thin section of the bone and articular cartilage need be removed, or if the osseus focus can be seen the chisel or saw may be limited to that portion of the bone containing the nodule. These atypical resections or partial excisions give practically the same functional results as arthrectomy. In its performance the knife, scissors, saw and chisel should be used as widely as the needs of the case demand, the curette being only employed to scrape away granular and degenerated tissues before the radical steps of the operation are begun. Curetting at this stage of the operation guards the sound tissues about the joint against traumatic dissemination. Cheyne, Warren, Tillmans and Park condemn the curette and kindred instruments in the radical steps of this operation and in arthrectomy. Senn claims that the danger of miliary tuberculosis is greater in all scraping operations. The case of pulmonary reinfection recalled by the writer, following operation, was the result of curetting.

The great trouble with resection has been that it has usually been delayed too long. Warren says it is unwise to wait for dislocations, joint abscesses and infected sinuses before performing resection, as much of the value of the operation is lost in these late cases. When these complications are present only complete wide excision is called for, regardless of age and the future usefulness of the joint.

If, however, care is taken to preserve the periosteal coverings of the bone and the ligamentous and muscular insertions about these joints, uninfected by tubercle bacilli, it is surprising often to see what good functional results

Wrist-joint, five months after excision (Case III).

may be obtained; the preserved tissues forming good, movable joints and useful limbs, even when typical resections have been performed.

Resection is applicable to the hip, shoulder, elbow and wrist. In the two following cases complete excision of the hip joint was the only procedure indicated at the time of

the operation. In the first case we will see the inevitable local results of temporizing; all radical operative measures were declined at a time when an atypical resection might have saved the joint, preserved the centers of growth and warded off the dangers of possible auto-infection.

Limit of wrist motion, five months after operation (Case III).

Case 1.—S. B., female, white, of good family history, was first seen by the writer in consultation with Dr. W. F. Holt and Dr. M. A. Clark, in the fall of 1898. She was then four years old, and was said to have been in appar-

ently good health up to a few days preceding this visit, when she had some trivial accident. She was taken up, unable to walk, and held the right thigh drawn up to the abdomen, the knee bent, the limb rigidly adducted and rotated inwards; any attempt to straighten the limb caused pain. Chloroform was administered and the head of the femur was found to be dislocated on the dorsum of the ilium.

October 10,1898. Under chloroform, the dislocation was reduced by manipulation, attended, however, with much difficulty. Extension was applied, the limb being maintained in an adducted position and the patient confined in bed for one month. A plaster of paris casing was then applied and the child allowed to go about on crutches for two months. Apparently there was recovery of function and health.

Early in March, 1899, a swelling was noticed on the outer side of the thigh below the great trochanter, which grew rapidly soft and fluctuating, without pain, heat or discoloration, the child's general health remaining unaffected.

April 7, 1899, this cold abscess was opened, discharging the usual tubercular detritus, its walls thoroughly curetted, scrubbed and irrigated with a sterilized boracic acid wash. The cavity was then injected with a ten per cent. iodoform-glycerine emulsion and sewed up. Primary union followed without any disturbance of function of the joint, and apparent good health continued for the next six months.

Early in January, 1900, the child, then being five and a half years old, began to cry with pain in the knee at night and to limp. A sinus formed in the scar of the incision on the thigh and the general health began to break.

June 25, 1900, assisted by Drs. McHatton, Ross and

Derry, the writer performed a typical resection of the hip joint. The head and great trochanter of the femur, which contained a diseased center, was removed, the track of the old sinus in the thigh and all diseased tissues in the capsule of the joint were cut away. The acetabulum was found to be intact. The wound was irrigated with sterilized salt solution and scrubbed with gauze mops. The cavity was filled with an iodoform tampon, the wound closed with silk-worm sutures, iodoform dressings employed and Buck's extension applied to the limb. Twenty-four hours later the tampon was removed, and a ten per cent. emulsion of iodoform was injected and the opening closed. Primary union occurred, notwithstanding a severe dermatitis, some delirium and slight fever (temperature 100 to 101), due to the iodoform dressings. Owing to the child's general good condition and the intensely hot weather, she was allowed to get up on crutches two weeks after the operation, the limb being incased in a wire splint, a high-soled shoe worn on the sound foot, and a lead weight (1 lb.) attached to the shoe of the diseased limb.

For two months this mechanical treatment was continued. Cod-liver oil with creosote, iodide of iron, generous dieting, and out-of-door life constituting the constitutional treatment.

Sept. 1 she was allowed to abandon the crutches, high shoe and weight. A good artificial joint was established, with restored health.

Two months later, while in perfect health, she was seized with diphtheria, and notwithstanding the best treatment by her family physician, Dr. Ross, she died within forty-eight hours of its onset.

The following is the microscopical report of Dr. T. E. Oertel of Augusta, who kindly made the sections of the diseased bones:

Irregular pieces of bony tissue, about 2x3 c.m. in size, spongy in character, covered on one aspect with a dense white structure, marking the outer portion of the bone. Several of the pieces exhibit a dark colored, more or less irregular area, involving in each case the outer aspect of the bone. This tissue has the appearance of that usually found lining a pyogenic cavity or sinus.

Pieces of the bone were decalcified, cut by the celloidin method and stained in hematoxylin and eosin.

MICROSCOPIC EXAMINATION.

In general there is seen the structure of normal spongy bone consisting of trabeculæ with interspaces filled with a delicate connective tissue framework, fat, blood and round cells, the number of the latter somewhat increased above the normal standard.

Those portions of the outer surface that were rough and dark in color are found to consist of a dense fibrous tissue filled with numerous free, irregularly shaped pigment granules and here and there small areas of new-formed connective tissue cells.

In some portions of this tissue are areas that take the nuclear stain pronouncedly and consist of aggregations of small round (lymphoid) cells intermingled with epithelioid connective tissue cells.

The centers of these areas are hyaline and have evidently undergone coagulative necrosis.

These areas present the characteristics of yellow tubercle.

In the next case we trace the successive stages of tuberculosis in a child having an heriditary diathesis, illustrating the metastatic course of the process and the almost invariable result of early neglect. Nor does the writer believe the results obtained is the end of the tubercular invasion in the case. Sooner or later pulmonary tubercu-

losis or infection in other organs will develop, not as a post-operative infection, nor as an auto-infection from the diseased hip; this focus has been removed and the operation was complete. The new invasion will be from the tubercule bacilli, latent elsewhere in the boy's organism at the time of the operation, and of course still present.

Case 2.—C. K., male, aged 5 years, mulatto, of poor family history, had scars of past suppurating cervical glands and of a corneal ulcer of the left eye. The glandular trouble began when the child was twelve months of age, the corneal ulcer about six months later. When three years of age he began limping, had pain in the left knee, and later the left hip was swollen. At the age of four years there was dislocation of the hip and adduction of the limb.

July 14, 1900, he entered the Macon Hospital, emaciated, had hectic fever, and two suppurating sinuses of six months' duration leading to the hip joint, one near the middle of the thigh, the other over the lower left border of the sacrum. There was no lung or other involvment discoverable.

July 17, assisted by Dr. Carswell and Dr. Wright, a complete excision was performed by the writer, after all granulating tissues in the acetabulum, the capsule of the joint and the sinuses being first curetted. Two sequestræ from the head of the femur and a portion of its cartilage were loose in the cavity of the joint. The remains of the femoral head was removed through the anatomical neck in sound bony tissue.

The dressings and after treatment of this case were the same as the previous case, but the child was confined to bed for a much longer time. At the end of three months crutches were abandoned. The child is now apparently in good health and growing rapidly, using the newly formed hip-joint with apparent ease and comfort.

Unfortunately, the anatomical specimens of this case were lost.

These cases illustrate the fact that good fibrous ligamentous joints can be obtained even after complete excision of the head of the femur and the capsular ligaments, if the after treatment of the cases is so directed. Shortening, nevertheless, will occur in the last case, should the boy live to adult life, and would have resulted in the first had she lived. The bootmaker, however, can now easily remedy the discomforts of a shortened limb.

Early excision is most urgently indicated in the wrist joint infected with tuberculosis: arthrectomy should never be attempted, as complete eradication of all foci of disease is impossible by this method. Warren claims that even resection is a useless measure in tuberculosis of the carpus and tarsus in adults, owing to the dangers of auto-infection and the usually useless member left by the operation. It is a well known fact that caries of the wrist is more often followed by pulmonary tuberculosis than is the disease located in other joints: particularly in adults is this true, in whom these joints are most frequently involved and the outlook from any form of tuberculosis is always most hopeless. I agree with him that excision, or any operation short of amputation, in the ankle is discouraging, owing to the average faulty functional results: still I am convinced that early radical excision of the wrist will give protection against auto-infection. If the operation is undertaken before the parts are destroyed and the fingers are not stiffened by inflammatory deposits around the tendons, a fairly useful member may be saved. In the case which follows, fortunately, the disease, though far advanced, had not yet completely destroyed the joint nor entirely crippled the fingers, and a successful excision could be performed. Functionally the results are fairly good, and the writer feels fairly sure that this man's death

will not be from auto-infection from his wrist, but if he dies from tuberculosis, it will be the result of latent foci present elsewhere at the time of the operation.

Case 3.—P., male, aged 39 years, white farmer, of good family and previous history, began in the winter of 1899 to have pain and swelling in the left wrist. A short time previous to this, he had cut one of his fingers while skinning a dead cow. An indolent wound followed, but finally healed. His physician in the spring incised the back of the swollen wrist, letting out some fluid. This incision quickly closed, but the pain and swelling was unrelieved, and he lost weight and strength.

Oct. 25, 1900, he came to the writer for treatment. The wrist was swollen and œdematous, the joint being spindle shaped. There were no fistulæ or openings communicating with the joint. Pain was constant, preventing sleep. Motion in the joint was limited, but the fingers could be fairly closed. He had no cough or other evidence of constitutional or local involvement, and his general condition was good except that he was off in weight some twenty-five pounds.

Nov. 1, at the Macon Hospital, assisted by Dr. McHatton and Dr. Carswell, the writer operated. The line of incision was made along the dorsum of the wrist and hand, beginning a little to the ulnar side of the middle of the articular end of the radius, and extending across the carpus down the hand nearly to the web between the second and third fingers. The tendons of the extensor communis digitorium were pushed to either side, and the joint and hand split between the trapezoid and os-magnum, the scaphoid and the semilunar, and between the second and third metacarpal bones. By this means the deep parts were widely opened; care was taken not to carry the incision to the deep tissues of the palm, so as to avoid cutting the two palmer arches and not to weaken the strength of the hand.

In this wound the heads of two meta-carpal bones and all of the carpal bones except the pissiform were removed. The articular end of the radius was not diseased and was not removed. Only the two extensor tendons to the carpus at their insertions were cut. Much tubercular detritus in the joint and gelatinoid tissue about the tendons of the hand were removed. Esmarch's bandage above the elbow made the operation bloodless.

This method is Dr. Wm. J. Taylor's modification of Mynter's procedure in performing excision of the wrist joint, and is by far the easiest and most conservative method of approaching this joint. (Annals of Surgery, September, 1900.)

The wound was washed and scrubbed out thoroughly, packed with iodoform gauze, closed with silk-worm gut sutures, except at the most dependent point for drainage, and the hand dressed and placed on a wire palmer splint. In forty-eight hours the packing was removed, iodoform emulsion injected and the drainage wound closed. The patient left the hospital on the sixth day and made an uneventful recovery under proper constitutional treatment. He now has a fairly useful hand, has recovered in weight what he had lost (25 lbs.), and feels perfectly well.

Dr. Oertel submits the following microscopical report:

The specimen submitted consists of a number of large fragments of carpal bones, presenting the usual characteristics of these bodies. The articular surfaces of some of the fragments are partially covered by a more or less dense and tough white tissue. This is of a fibrous nature and quite elastic.

The largest mass of this description measures 1.5x.5 c.m. This is sectioned by the celloidin method and stained with hematoxylin and eosin.

MICROSCOPIC CHARACTERISTICS.

The mass consists in general of irregularly disposed bundles of wavy fibrous tissue, for the most part devoid of nuclei. Small aggregations of fat are noted and in these situations there are arteries with greatly thickened walls, in many instances the lumen of the vessel being entirely obliterated.

About these vessels are numerous small round (lymphoid) cells and new connective tissue cells, having no definite form of arrangement. The tissue described merges upon one side with bony trabeculæ in which nothing abnormal is noted. No definite tubercle formation is seen. The process is evidently inflammatory in nature.

One of the smaller pieces of carpal bone, after being decalcified, was sectioned by the celloidin method, stained in hematoxylin and eosin and mounted in balsam. The sections presented the appearance of the normal structure of the part.

The doctor's failure to find absolute evidence of tubercle formation is no fault of his methods, nor is it conclusive evidence of the absence of tuberculosis in the wrist. The disease was not universal, some of the bones were not involved. All of the bones were not sent to him, and only two or three specimens he received were examined by him owing to lack of time.

DISCUSSION OF PAPER OF DR. HOWARD J. WILLIAMS.

Dr. Westmoreland: I think the doctor is right in making resection to remove tubercular infection. There is only one exception, and that is where there is a cold abscess which has continued for some length of time. Then my plan is not to open unless it is necessary; but in all primary infections it should be done. In the lungs the tubercular infection is about the junction of the pleura and the lungs, and in joints the location is similar, that is, at the junction

of the synovial membrane. You should operate; and operate so as to remove the entire tubercular focus. Tubercular cases are like other infections, and should be removed early and before the tubercular granulomata have formed. The tendency is always toward the joint, as being of least resistance, and the quicker you can remove the infection you will get better results in every way. One peculiarity about tuberculosis: it will go along the line of least resistance and spread upward to the skin or into a joint. Where you have a cold abscess, it simply means that nature has put a membrane around it, which, when you open, will probably do more harm than good. Do not open a sinus unless you can completely evacuate, as you simply excite an inflammation which was terminated before.

Dr. Hunter P. Cooper: I have been very much interested in Dr. Williams' excellent paper. In the main, I agree with the views he has expressed. I think there is occasion, however, to separate these patients, and to commonly divide them into two classes. I think it is very necessary to make a distinction between very poor patients who cannot command the attention that wealth gives to other people. In hospital work I endorse every word that Dr. Williams has said as to radical procedures in all tubercular joint affections; but in private work where many people are able to give proper attention to children, I have always held to a rather more conservative course, and I see no reason to change. In early tuberculosis at the hip-joint, if the child is of fairly good history and where attention is received early, I think in many instances a more useful result will be obtained by conservative methods at the end of four five years than by the excision of the hip-joint. We have all seen cases of cured hip-joint disease. I have seen them who have had it all their life from childhood and I think the result in many of these cases who have had proper treatment would make us feel that we could not

have done better by excising the joint. When you come to the knee-joint the results of conservative treatment, and particularly at the ankle-joint, I think are far in advance of radical operative measures. As to the correctness of this proposition, I am open to conviction, but my observation is that in patients of the better class whose parents can give them attention, if you get tuberculosis of the knee-joint where you are called to see a child on account of a slight limp, and beginning infection with probably enlargement of the tibia or condyles of the femur, and you use a splint and crutch and a high shoe on one side and weight on the other, and change the splint as demanded,—with this course of treatment you will frequently get the child well with a perfect result. I have a child patient now whom I have carried through several years and who has as good a joint on the other side. You can not promise as much with the other treatment. You can get better results, especially in the ankle-joint, than by excision. The joint is made by nature to bear the weight of the body, and if you cut away the ends of the bones, you will get a very poor joint to support the weight of the body. My observation in conservative treatment of the ankle-joint has been as favorable as in the knee-joint. In tuberculosis of the ankle-joint, after months and years of suppuration, but with careful drainage. I have seen results obtained with strong ankles and useful feet, and only a slight limp as the motion is preserved in the tarsal bones. But when it comes to the wrist-joint, I believe in the radical operation and excision, as otherwise it will ultimately result in the amputation of the hand.

CARCINOMA OF THE BREAST.

W. F. WESTMORELAND, M.D.,

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This paper is not prepared with the intention of presenting any original thoughts, but rather to emphasize the importance of a more thorough pathological and clinical study of individual cases. Cases as usually reported are of little value, except in estimating the ultimate result of the case. I hope that the future reporters will give a synopsis of the clinical history and the pathological type of the tumor, that they may prove of more value to us for comparative study. Since the inauguration of the radical operation, the mortality rate seems to have been ignored, in exploiting the small per cent. of local or regionary recurrences. It is of no value to our patients to reduce the percentage of local returns to six or ten per cent., if the mortality remains at sixty per cent. The question of vital importance to both surgeon and patient is, how many can we cure? That we will be able to reduce the mortality rate to any such figures as some recent writers would have us believe, I think is absurd. We will never accomplish it by operative procedure.

Carcinoma now presents even a more serious problem than formerly, on account of its rapid increase. The proportionate mortality from cancer now is four and a half times greater than half a century ago! No other disease can show anything like such an immense increase.

In 1840 cancer caused 2786 deaths, the proportion being 1 in 5,646 of the total population, and 1 in 129 of the total mortality. In 1896 deaths due to it numbered 23,521, or 1 in 1,396 of the total population, and 1 in 22 of the total mortality. During this time the increase in the male was 167 per cent. and female 91 per cent.

The relative frequency with which it occurs in the breast is as follows: An analysis of all cases admitted into three of the largest London hospitals over a period of from ten to seventeen years, showed 11,100 cases of tumor, 5,978, or 53 per cent., were carcinoma; of these 1,433, or 53 per cent., were carcinoma of the breast. Fourteen of these cases were in males, or 1 case in the male to 101 in the female.

Two out of every five cases of carcinoma in the female are of the breast.

Over three-fourths of all the tumors occurring in the breast are carcinoma; or, to be exact, of 637 tumors over 503, or 83.20 per cent., were carcinoma, leaving only 107, or 16.79 per cent., representing all other forms of neoplasms.

It never occurs in the developing breast, and less than four per cent. occur in patients under 30 years ofage; after this it gradually increases, reaching its maximum of frequency at 48.

It occurs in the breast with greatest frequency after 40, or during its functional decline. Of 642 cases, 496, or 77.26 per cent., began after this age, the other 146, or 22.74 per cent., appeared during the perod of its greatest activity, or up to the age of 40.

While the scope of this paper will not allow a discussion of the histogenesis, histology, etiology or pathology of this subject, I will venture a word in regard to the etiology. There is no subject in surgical pathology about which such

divergent opinions are held, opinions impossible of reconciliation.

While the weight of opinion is against the parasitic origin of cancer, the recent work of the Italian pathologist and that at Buffalo, N. Y., by Dr. Harvey R. Gaylord and associates has been very convincing, and I am optimistic enough to believe that the careful work pathologists are now doing will in the next few years clear away much of the present obscurity, and that another decade will develop a more satisfactory plan of treatment than that of radical surgery, probably along the line of bio-chemistry. I would refer those interested in the pathogenesis of parasitism of malignant tumors to an article by Park, and several in the American Year Book, and recent articles by Gaylord.

A word in regard to heredity. Paget says family history of cancer occurs in 33 per cent. of cases. While I do not think it is that high, still it occurs frequently enough to deserve attention.

I do not know whether I am alone in the following observation, but my experience has been that a bad family history means an unfavorable prognosis, even when the case is seen early, and means not only an increased tendency toward early local return, but earlier metastasis. There seems to be an increased susceptibility, or practically an inherited predisposition.

There is a wide variation in the malignancy of carcinoma, some proving fatal in less than a year, a few others taking ten or fifteen years. This variation not only occurs in the different varieties, but also between the types of the same varieties.

It is impossible, without lengthening this paper beyond reasonable limits, to discuss the different varieties of carcinoma. I will divide them into two varieties, using the old and more familiar nomenclature of Schirrhus and Medullary or Encephaloid. The former having an average dura-

tion of life of about thirty months, and the latter of about twelve months.

This variation in the duration of carcinoma depends upon the histological character of the tumor; the more it varies from the normal, or the more atypical or embryonic its cells, the greater their malignancy.

When the cells are very atypical the development of the cancer is rapid, the tendency to local or regionary recurrence is increased, secondary metastasis occurs early, and the prognosis is extremely unfavorable. The nearer the cells are to normal or typical type, the slower these changes occur, and the more favorable the prognosis.

The malignancy of the cells is best illustrated by their invasion of and their recurrence and metastasis in neighboring structures—the axillæ, pleura, lung, etc., that are practically exempt from primary infection.

In post-mortem examinations of 128 patients dying from carcinoma, secondary tumors were found in the axillary glands in 89.94 per cent.; other glands, 23.43 per cent.; pleura, 23.43 per cent.; lung, 21.87 per cent.; and in the liver 42.96 per cent. If we now take into consideration the fact that the skin and pectoral muscles are involved in nearly every instance, we see the philosophic reasoning upon which Halstead's operation is based. This operation removes all tissues along the line of infection, even removing the glands from the mediastinum occasionally.

I will not go into the technique of this operation, as it is now classic literature. I will, however, quote from his recent article his method of cleaning out the supra-clavicular region.

"Our present method of operating for the cure of breast cancer is even more radical than it was at the time of the writer's first publication on this subject. The supra clavicular region is almost invariably cleaned out. To do this, we no longer divide the clavicle, as we did five or six years

ago: for simple division of the clavicle does not facilitate the dissection much, if any, and the removal of a piece of the collar-bone is a procedure which maims without sufficient compensation. If it were very desirable to remove the supra-clavicular in one piece with the axillary contents and the breast, one might not hesitate to excise, if necessary, even the entire clavicle; but the removal of the supraclavicular fat and lymphatics is best done from within outward and from below upward, for in cleaning large veins like the subclavian and internal jugular, the surgeon works to the best advantage if he starts at the vein and works away from it.

"The subclavian vein being the starting point in the dissection of both the infra and supraclavicular regions, it is unnecessary to remove the clavicle and useless to divide it.

"By elevating the shoulder the clavicle can be raised an inch or more away from the first rib, when the operation is so far completed as to make this desirable. The web of fibrous tissue which binds the subclavian vein loosely to the clavicle, is thus spread out, and can be easily removed. The fingers can be passed from the supra to the infra clavicular and to the subscapular regions under the clavicle, and any fat in the latter region, near the internal or posterior border of the scapular between the serratus magnus and subscapular muscles which could not be reached from the axilla can be drawn out through the neck.

"Dr. Bloodgood was, I believe, the first to demonstrate the advantages of completing the cleaning out of this postero-internal subscapular region by the supraclavicular route.

"To excise the supraclavicular tissues, we use a vertical incision parallel with the sterno-cleido mastoid muscle near its posterior border; a few of the posterior fibers of this muscle are divided and the junction of the internal jugular and sub-clavicle veins is exposed.

"At the angle of junction of these veins the dissecton is begun. The omo-hyoid is divided at its tendinous part, the two bellies of this muscle being drawn out of the way, and serving in a measure as retractors."

Operate on the neck in every case will hereafter be my rule.

Halstead's operation has materially lowered the mortality rate: he has cured 31 of 76 cases operated upon (41 per cent.).

The best previous statistics I have seen are Bull's: 20 cases cured out of a total of 75 (26.6 per cent.).

The results of this operation will depend upon the ability of the individual operator; his earliness in seeing the case, and his closeness in following Halstead's technique.

This operation not only requires surgical skill and experience, but a proper respect for the magnitude of small things.

No surgeon will make a satisfactory operation on his first few cases. I find that with each case I operate more satisfactorily.

The operation does not present the seriousness its magnitude would lead us to believe. I have operated six times before my class at a public clinic and transferred the patients afterwards, at times quite a distance, to their homes.

In my first operations I had some exposure shock, but this is easily controlled by placing hot towels over the exposed surfaces.

There is practically no blood lost in a properly made operation.

It is better to complete the operation, grafting included, at one sitting; when for any reason this is not practical, the cleaning out of the supraclavicular region and the grafting can be made at a second operation. When skin grafting is made at a second operation the granulation should be removed by curetting. In two of my cases it was necessary to remove the subscapular nerves, and in another to resect

the axillary vein; no unpleasant sequela followed in either case.

Volkman has said, that if after an operation a patient passes over three years without a recurrence or a symptom of metastasis, that almost without exception one may feel sure of a permanent cure. I think this dictum has been taken too literally; I have had two cases to return with late recurrence, one with a carcinoma of the femur five years after the operation (no local return), and another with a local return in the cicatrix nine years after operation. This case died in a short time from metastasis. I feel quite sure that these were not independent new growths. Bull excludes a case from his report that died of cancer of the esophagus nine years after a breast operation.

Snow has pointed out the manner in which these late recurrences may occur. He has found marrow infection in 80 per cent. of mammary cancer that died. This infection is very insidious, it frequently occurs within six months of the beginning of the disease; first infects marrow of the humerus; frequently the sternum; these symptoms are rarely recognizable before a year.

They are peculiarly chronic and latent, and may pass unnoticed for four or five years. With these observations in view, it is impossible to pronounce a patient cured after three years, unless we are sure that marrow infection does not exist.

The symptoms of this marrow infection are tenderness on pressure of the upper third of the humerus; and it becomes thicker than the other. Also gradual bulging forward of the sternum at the junction of the upper and middle portions, as a painless lump, and frequently gnawing pains in the lumbar and scapular region, on the same side as the lesion. In all post-mortems made upon these cases, the marrow of these bones should be carefully examined. When infection occurs, white marrow is found, which is

firm and white. An examination of the blood showing a large number of myelocytes (marrow cells), eosinophiles and neucleated corpuscles, would indicate bone matastasis.

It is strange how little attention surgeons have paid to the changes that occur in the blood as the result of surgical diseases; in many of which these changes are pregnant with valuable information that cannot be obtained in any other way.

If this paper can stimulate greater surgical attention to this subject, I will feel that it has been of no little value. For with more general surgical interest in this subject, much of the mysteries will clear away, and it will become one of our greatest aids in diagnosis and prognosis. This is particularly true of malignant tumors. The following changes which we mention are a synopsis of those occuring in carcinoma of the breast. There is always one rule, that the more maligant the case, the greater the "blood changes."

In the early cases, as a rule, there is little diminunition in the normal blood count (5,000,000), of the red corpuscle in early cases. In the advanced cases it may run as low as 2,000,000, and at death frequently being low as 1,000,000 (a distinction must be drawn between these cases and cancer of the stomach, where through lack of liquid taken, there is concentration of the blood and a high count. This is also slightly true of hemoglobin changes). But there are decided changes in the individual red cell as follows: There is a diminution in the average size of many of the cells. Deformities of the cell are frequent. There is a loss of color and weight, nucleation and degenerative changes are frequent. All of these changes become more marked in advanced cases.

The general average of hemoglobin in the blood is 90 per cent. The minimum that a patient can live with is apparently twenty per cent. Mileulicy found in three pa-

tients dying from collapse only 15 per cent. remaining. There is always a reduction in these cases; in marked cases it has been reduced to as low as 20 per cent. The average reduction as noted by different observers has been Reinback, to 50 per cent.; Rieder, to 53 per cent., and Cabot to 54 per cent. There is an average additional reduction after operative interference, due to hemorrhage, of 17 per cent. This is of great clinical significance and illustrates the value of blood examinations, showing that patients with a reduction of hemoglobin to 30 or 35 per cent. if operated upon, will probably die of collapse.

The "regulation time" (by this is meant the number of days that pass after the operation before the hemoglobin begins to rise) is on an average of a week later than after operations for non-malignant conditions. The average time after non-malignant cases is fourteen to twenty days; after operation for carcinoma the average is twenty-five days.

In cases where there is an incomplete removal, metastasis or recurrence, typical regeneration or restoration is prevented, and the hemoglobin percentage never reaches the point at which it was before the operation. After successful removals restoration not only to the previous point but with positive gain is obtained. An accurate estimation of hemoglobin at intervals after removal of carcinoma possess positive prognostic value that cannot be obtained in any other way.

The normal limits of white blood count are 5,000 to 10,000. The larger and more rapidly growing the tumor is, the larger the count; general metastasis also increases the leucocytosis. There is always a decrease after an operation. This remains if the operation is successful, if not the leucocytosis returns.

I quote an illustrating case of Hayem:

Before operation 21,700

5 weeks after operation (wound not quite healed)	10,000	
Wound completely healed	6,200	
Seven months after operation	8,900	(beginning to rise again.)

The growth recurred some months later and leucocytosis was again present. Leucocytic count as well as the hemoglobin precentage will predict a recurrence before there are any physical signs.

In this leucocytosis there is a marked increase of the adult, at the expense of the young cells. The polynuclear cell reaching a percentage of 90. A percentage of myelocytes is more frequent than in any other condition; they are particularly increased when there is bone metastasis.

The primary object of this paper is to call attention to the fact that a careful examination of each case, with a clinical record of the family history, the length of time the tumor has existed, the local and constitutional conditions of the patient, the type of tumor, the blood changes before and after the operation, and a pathological examination of the specimen, would not only give us a record of infinite value for comparative purposes, but also valuable facts upon which to base a scientific prognosis. There have been many plans, other than operative procedures, suggested for the treatment of carcinoma.

The most prominent are the injection of bacteria and their products (Coley); the injection of alcohol (Hasse); the use of thyroid extract (Fredreck); of pyoktanin (Fricher); oophorectomy (Cheyne); oophorectomy and the use of thyroid extract (Beatson), etc.

None of these methods have proved of any value, and have caused in many instances dangerous delay—delay that has allowed the tumor to grow beyond the limits of a radical removal, and sacrified the life of the patient. No matter what relief the future may have in store for

these unfortunates, there is now nothing more positive in either medicine or surgery than that their only chance of cure lies in the early and radical use of the knife, and that of all the operative methods suggested, Halstead's operation is the most successful.

DISCUSSION OF DR. WESTMORELAND'S PAPER.

Dr. McRae: I am sure that the observations along the lines of blood counting, etc., are of great value. It seems to me not to be quite sufficient evidence as manifested by the statistics to prove that Halstead's operation is the best for the breast. I think it is somewhat an open question. I know that I am taking a position with which surgeons generally disagree. A good many patients will stand the simple operation for removal of the breast and cleaning of the axilla that would not stand an extensive operation, even though done in two sittings. I think it is better judgment to do a simple operation rather than a more extensive one. In recent years I have usually done the Halstead, but in the early cases in which I did only the simple operation and cleaning of the axilla, the statistics have been better than where I have done the recent operation of Halstead. One point in the technique which I find necessary in these cases, and that is the resection of a large portion of the axillary vein and nerve, as mentioned by Dr. Westmorland. Those cases do just as well and it does not seem to interfere with the subsequent history of these cases.

Dr. Earnest: I have no new suggestion to make, but would insist upon all occasions of testing immediately every suspicious case wherever it occurs. My own experience agrees with that of Dr. McRae, that these simple operations, as made several years ago, are best if made very early. You should clean out the axilla, however, if there is reason to suspect infection, as sometimes if you wait for a

full confirmation of the case with the microscope it is too late. If there is any suspicion of the glands being infected you should give the patient the benefit of the doubt.

Dr. Geo. R. Fowler, Brooklyn, New York: It has been my privilege to come into contact with a relatively large number of cases of carcinoma of the breast. In the earlier days it was only considered necessary to remove the breast. Then Morris, of England, suggested the removal of the axillary glands in not only the cases in which the glands were involved, but in all cases, as a routine practice. This was a great step in advance, and one can not help but feel that this has been the means of saving many lives. When Heidenhain demonstrated the lymphatics running through the retro-mammary fascia and the pectoralis muscles we had become very hopeful that at last we were in a position to promise patients a greater probability of immunity against recurrence than ever before. It is probable, however, that with the extension of the operative procedure has come a greater operative mortality. It is also true that statistics as to ultimate results have been correspondingly improved; so that if we take the number of months of life that have been saved to the large number of patients under present conditions with extensive operation it certainly more than balances the increased mortality. It goes without saying also, that the earlier cancer of the breast can be diagnosticated the less extensively radical the operation need be. We also recognize the difficulty of deciding just how extensive the disease may be as to the involvement of lymphatic vessels and glands. Certain it is that when the conditions demand it and the circumstances permit the complete operation as recommended by Halstead should be done.

My experience with the radical operation leads me to insist upon more rapid operating in this field. This will

enable us to do the radical operation without the danger to life that was supposed to obtain when Halstead first introduced it. Halstead goes very deliberately about it and does not think that three hours is too much time to occupy in its performance. Whether from fear of infection or for some other reason he insisted upon clamping and tying every vessel himself, and permitted no one else to do any of the smaller work. But I think that surgeons who have had a large experience in this field will bear me out that the danger of infection is not greater, nor even as great as elsewhere, and therefore I usually have two or even three assistants, so as to accomplish the work as quickly as possible. I have had no reason to regret this, have had the minimum of infection, and it reduces the operation from three hours to half an hour, in cases in which the supra clavicular glands are not involved. The removal of the pectoralis muscles does not add much to the procedure and gives better access to the glandular structures. By means of complete removal greater immunity against recurrence will be assured, and with rapid operating we will be in a position to lower the immediate mortality. These being accomplished, you may be sure we will operate more and more.

As to the functional results of the removal of the pectoralis muscles, I have removed both breasts, together with the muscles and cleared out the supra and infraclavicular regions at one sitting. The patient was able to do ordinary housework afterward and could raise the arm to her head to dress her own hair.

Dr. Westmoreland (in closing): I agree with Dr. Fowler that a great deal of credit is due Morris. The Halstead operation is simply based upon reason, that is, you remove that tissue in which we know recurrence is more apt to take place. So far as you can, remove the tissue that is apt to be connected with the growth. I believe in the Halstead

operation because you can remove the tissue which is most likely to be involved. I am not in favor of the partial operation. I remember one case in which I thought proper to leave the pectoralis muscles, but finally decided to remove the pectoralis major, and then passing my hand over the minor I discovered that there was involvement beneath this muscle, although there was nothing under the major muscle. Sometimes in traveling along the lymphatics it is so gradual and insidious that you can hardly tell the cancerous cells with the microscope. The best rule in operating is to follow along the lines that will give best results. In regard to the operation, I am sceptical that statistics of radical cures will decrease.

I believe in the increasing tendency toward carcinoma, and that it is due to parasitic infection, and we can take certain houses and regions and they are called cancerous. It is a question of environment and situation in which the patient lives. Keen reports a case in which he did some skin grafting and there was recurrence at the point from which the grafts were taken.

REPORT OF SURGICAL CASES.

THOS. R. WRIGHT, M.D., Augusta, Ga.

The detailed reports of surgical cases, while not of as much interest as the presentation of work along original lines, yet brings out points of importance, and in this way proves of value. The cases to be reported have been of special interest to me, as showing the importance of diagnosis and prompt surgical interference in cases which at times seem desperate and beyond all hope. The first two cases are those of "Ruptured Ectopic Pregnancy."

In November, 1899, I was requested by my brother, Dr. J. B. Wright, to see Mrs. S., aged 17, married three months, who the day before, about noon, while attending to her household duties, was suddenly seized with intense pain in her abdomen. She fainted and fell on her porch, where she lay for some time (there being no one in the house with her), and after a time recovered sufficiently to crawl into her house and get on her bed, where a neighbor found her still suffering. Late in the evening Dr. W. was sent for and found her with a temperature of 99 and pulse of 100. She was pale and complaining of dull pain and soreness in her abdomen, with some distention. Something was given to quiet her, and she rested during the night. The next morning her conditions were the same. Towards night, there being no improvement, I saw her, and on examination found her pale, blanched, with a temperature of 99 3-5, pulse weak and 96 to 100, abdomen very much distended and painful to pressure, especially on her right side. Vaginal examination revealed nothing save tenderness over broad

ligament and ovary of the right side. Farther inquiry revealed the fact that she had not menstruated in seven weeks. The history of the case, with the existing conditions, made me believe that we had a case of "Extra Uterine Pregnancy" to deal with. The situation was explained to her family and husband, and her immediate removal to the hospital advised, in order that our case could be promptly and properly dealt with upon recurrence of the hemorrhage. She stood the removal to the hospital without trouble, her condition being practically unchanged. I instructed her nurse to give her panopepton, half an ounce, every two hours and 1-40 gr. of strychnine every four hours, and to watch her pulse and temperature very carefully, to notify me upon the slightest change and have everything ready for an immediate operation. At 2 a. m., just four hours after her arrival at the hospital, the nurse called me, and upon reaching the hospital I found the patient with a temperature of 97 and pulse of 150, barely perceptible. Everything was in readiness for transfusion, and eight ounces of normal saline solution was given before she was taken from her room. Very little ether was required for anesthesia; the patient soon being upon the table well covered with blankets and surrounded with bottles of hot water to prevent any further reduction in temperature. Her abdomen having been already prepared, an incision three inches in length was made in the median line, commencing just below the umbilicus. When the peritoneum was reached it bulged into the wound, looking like a blackened intestine. Upon opening it, dark fluid and coagulated blood gushed out in quantities. Introducing my hand, the right ovary and tube were felt to be enlarged, and were brought up into the wound, when fluid blood could be seen coming from the rent in the sack. Clamps were put upon the broad ligament and the douche nozzle introduced into the abdomen

and a normal saline solution, at a temperature of 110, was allowed to flow in freely. The tube was carried to different portions of the cavity until the water came back practically clear,—in all ten gallons being used. The wound was closed, leaving in gauze drainage. At this point the patient's condition became bad, and she was again transfused, using eight ounces of normal salt solution, with prompt and good effect. The patient was carried to her room and put in bed with the foot elevated twelve inches. Her pulse at this time was 130, temperature 97. During the next twenty-four hours her pulse varied from 120 to 130, her temperature going to 99. She was given high nutritive enemas once every six hours, and water was given freely by the mouth as soon as she could take it. From this time on the progress of the case was uninterrupted; the gauze being removed on the fourth day and the wound closed. The patient was discharged from the hospital at the end of the third week. The specimen from this case is herewith presented, showing the tubal form of pregnancy. This lady has since been delivered of a living child.

Case 2.—B. S., mulatto, 20 years of age, single; was seen by me in consultation with Dr. Morton. She presented the following history: The day previous she was seized with violent pain in her abdomen, located principally in the right side. The pain was unattended with faintness, and continued until she was punctured with morphine by a negro physician whom she had called in. When seen by Dr. Morton in the early morning of March 5th, her temperature was 99, pulse 130 and weak. She was still complaining of much pain in her abdomen, with distention and frequent vomiting, and no movement from her bowels. Examining her abdomen it was found to be very sensitive, especially in the right iliac region. The question of diagnosis lay between a fulminant case of appendicitis and a ruptured extra uterine pregnancy. She said she had menstruated in the

past four weeks and her period was then due, the delay in its appearance causing her her present pain. The possibility of pregnancy was stoutly denied. She was removed to the Lamar Hospital, where I saw her again within two hours and found her temperature going down and her pulse steadily increasing, with a blanched and anxious expression. I then determined to operate upon her as quickly as possible, believing now I had a case of ruptured ectopic pregnancy to deal with. Before things could be gotten ready for the operation, which required, however, but a short time, her pulse had become very rapid and weak. Hurrying up matters as rapidly as possible, the abdomen being opened in the median line, it was noticed there was no blood from the edges of the wound—not a forcep was required. The peritoneum being opened, black fluid blood came out as in the first case. The right tube and ovary were quickly brought up and clamped. Quantities of normal salt solution was then poured into the abdomen, thoroughly washing it out. The ovary with the fetal sack were tied and removed, and the wound was closed with gauze drainage. During the operation it was necessary to use both transfusion and high enema. She was taken from the table with a very feeble pulse of 150 and a temperature of 97 1-2. She reacted very well and went on to make an uneventful recovery. Specimens are herewith presented, showing both the sack with the attached ovary, and the fetus.

Case 3. Inter-peritoneal hemorrhage from a probable wound of the liver. On the 12th of July, 1900, I saw James T., a stout railway conductor, 35 years of age, who the afternoon before, while on the steps of his car, was struck by a runaway team. When seen he had a pale, haggard expression, temperature of 99 and pulse of 120, which was very feeble. He was complaining of great pain over the region of his liver, with some distention of his abdomen, He was also very much nauseated. His right side showed

evidences of extensive bruising, although there was no fracture of the ribs. Believing from the man's condition that an internal hemorrhage was going on, his immediate removal to the hospital was advised. This was not consented to until late in the afternoon, when all of his symptoms were very much worse and his condition extremely bad. After reaching the hospital his condition was so bad it seemed useless to attempt to do anything for him. I felt it my duty, however, to give him an opportunity for his life and determined to open his abdomen with a view of seeing at least what could be done for him. He was given a high nutritive enema and placed upon the table with a barely perceptible pulse. Fearing the effect of chloroform or ether in his condition, a two per cent. solution of cocaine was instilled along the median line, extending from the umbilicus four inches. The abdomen was then readily opened and the peritoneal cavity found full of blood. Several gallons of hot normal saline solution was run through his abdomen, and it was noticed that, introducing the glass nozzle under his liver, the water came back brightly colored, so that I believed I had a wound of the liver to deal with. At this point of the operation my assistant told me it was useless to go further, as my patient would be dead in a few moments. I persisted, however, and quickly introduced under the liver a number of pieces of gauze, which were pressed up against it, the ends being brought out of the wound, which was left open. He was taken from the table more dead than alive. He was thoroughly protected in bed and given another high enema, containing one ounce of panopepton, two ounces of whiskey and eight ounces of salt water. The operation was finished at 10:30 p.m. Toward morning he began to show signs of reaction, and by 10 a. m. had a pulse of 140 and a temperature of 100. The high enemas were continued every six hours, and he was given water as often as he could take it. The drainage was removed

the next afternoon and abdomen again washed out, the gauze replaced as before. It was noted at this time that the blood still came from under the liver. The irrigation and packing was continued for four days, when the wound was partly closed, leaving only a small space for drainage. From this time on he slowly but steadily improved until the tenth day, when he developed a phlebitis in his left leg, which gave him some little annoyance, but from which he had sufficiently recovered to be able to leave the hospital at the end of four weeks. This case I believe to have been one in which some portion of the liver had been ruptured from the direct and violent injury inflicted immediately over it, although I was unable to verify my belief by actual observation. In any event, by opening his abdomen, the large amount of blood which had escaped was removed, and by the use of hot water and gauze packing the hemorrhage was arrested. I believe in all similar cases wherein grave visceral injury is suspected, and especially when evidence of hemorrhage is shown, the same method of treatment should be adopted, because it gives, first, an opportunity of looking for and repairing visceral injury, and, secondly, the arresting of hemorrhage, and, lastly, the removal from the peritoneal cavity of an amount of blood which could not be absorbed and would simply go on to disintegration with its subsequent poisoning. If an operation is to be done under these circumstances, it should be done as early as the symptoms will allow.

Case 4. Acute Obstruction of the Bowel. On the 31st of March, 1901, I saw Mr. G., who the day before commenced to suffer with pain in his abdomen, which increased and continued during Saturday night and was attended with constant nausea and vomiting, with no movement from his bowels. He had been seen by my brother, Dr. J. B. Wright, who had given him salines and other remedies, but without relief. When seen by me at 2 p.m. on Sunday, the

31st, his pain was intense and located just to the right of the umbilicus; his addomen tense and painful to pressure, and he was still very much nauseated; with frequent vomiting: a pulse of 120 and a temperature of 99 2-5. After examining him carefully I had him placed in the knee and chest posture and a rectal tube introduced and a high asafoetida enema given, which came back without any result. When seen at 8:30 o'clock in the evening there had still been no movement from his bowels and no cessation in his vomiting, which now had a decided fecal odor, although containing no fecal matter. His temperature was the same, and his pulse 130, with an expression which was very bad. I believed now the case was one which demanded prompt surgical interference, and so advised. He was at once removed to the hospital and very soon taken to the operating room, where his abdomen was opened by the usual median incision. Introducing my fingers into his abdomen, I felt in the locality in which he felt so much pain a mass, running across which I could feel distinctly a band, under which by careful manipulation I was enabled to introduce my fingers. Then drawing open the wound with retractors the band could be distinctly seen 1 1-2 inches in length connecting a loop of intestine four inches from attachment to attachment, which made a loop through which had passed several coils of intestine in such a way as to bring the band on top and the loop of intestine behind with coils of strangulated gut between them. The band was caught between clamps and severed, which at once relieved the strangulation. That portion of the bowel which had been strangulated was very dark, but under flushing with hot saline solution for some little time began slowly to regain its color. The abdominal cavity was thoroughly washed out and the wound closed with a small gauze drain. His pulse during the operation was 137, dropping to 114 shortly afterward. The next morning his pulse was 110, temperature 99.2; the bowels

moved freely four times during the early morning. By afternoon his temperature and pulse were both below 100, with no nausea and no pain. The drainage was removed on the second day and the abdomen closed, the man making a good recovery.

It is of interest to state that the probable cause of this trouble was due to repeated attacks of appendicitis, which he had suffered from before November 30th, 1900, on which day I removed his appendix by the gridiron operation, finding it free from adhesion excepting to its own mesentery, upon which it was coiled like a spiral, with its tip in the center of the spiral. When liberated the appendix measured five and a half inches. His recovery from this operation was without incident, he returning to his home in two weeks. I learned from him that in some of his attacks of appendicitis he had been very sick and had suffered extremely. Probably in some one of these attacks sufficient peritoneal inflammation had existed to form the fibrous band already mentioned, for it was too strong and firm to have been of recent origin. This case again illustrates the value of early diagnosis and operation, for had he been allowed to wait six or eight hours longer his life would have been lost.

DISCUSSION OF DR. WRIGHT'S PAPER.

Dr. Earnest: I congratulate the doctor on his interesting paper. The first case interested me more, and I think he was fortunate to save the patient. I will state, however, that in my own practice for the last few years I have used no drainage whatever, and have succeeded as well; in fact, the cases are more satisfactory than where I used any drainage at all. The only case of extra-uterine pregnancy in which I used drainage was one which bled so profusely and no chance to clamp the vessels and had to pack the pelvis with iodoform gauze. But I believe, as a rule, that those cases can be better managed without than with drainage.

"INTERNAL DERANGEMENT OF THE KNEE JOINT," WITH A REPORT OF TWO CASES OF REMOVAL OF THE INTERNAL MENISCUS OR SEMILUNAR CARTILAGES.

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For many years English Surgeons have been in the habit of describing certain affections of the knee joint under the somewhat vague term of "internal derangement." The three symptoms which these affections have in common are: Sudden pain while the joint is in use; disability for the time being; and a resulting effusion in the joint.

In recent years, owing to the greater safety, and hence increased frequency of exploratory incisions into the knee joint, surgeons have been able to determine at least four separate conditions formerly grouped under this name.

The first of these is papillary synovitis. This consists of localized hypertrophies of the synovial membrane, with the formation of so-called synovial fringes. These latter generally spring from the synovial membrane where the latter joins the cartilages; exceptionally there may be papilomatous growths extending over the entire synovial surface. These fringes or papillæ consist of fibrous tissue, which, in cases in which these are long enough to become pinched between the articular surfaces, are covered with thickened synovial membrane. In some instances there

is a marked deposit of fat in the fringes, constituting the condition known as "lipoma arborescens."

Papillary synovitis is comparatively common, and is a frequent cause of chronic synovitis. It is not confined to the knee joint, but has been observed in other joints as well. Its etiology is extremely obscure. By some it has been considered as depending upon the same causes as rheumatoid arthritis. This, however, is very far from being proven.

The symptoms of this condition which interest us most in this connection are occasional attacks of sudden disability accompanied by agonizing pain, and followed by effusion into the joint, and tenderness upon pressure. The attacks may occur without special reference to the kind of movement made at the time, and are due to the before mentioned pinching of the synovial fringes between the ends of the bones. When the effusion is not too great, particularly when the fringes occupy the lateral pouches of the joint, these may sometimes be felt on palpation, a sensation of soft crepitation being conveyed to the palpating fingers as the fringes are moved about.

The treatment consists in dissecting away the fringes, particularly at the points where they may become pinched. The results of this treatment are promising, where the dissection does not involve a large portion of the synovial membrane. The more of this latter that is removed, however, the more disturbance to the function of the joint follows. In cases of complete erosion, fibrous anchylosis results. This, however, in a patient who is greatly crippled by the presence of this affection is preferable to a condition involving both disability and excessive pain. In some cases improvement has followed evacuation of the effused fluid following an attack, and irrigation of the joint cavity with a mildly irritating fluid, such as a 2 1-2 per cent. solution of carbolic acid, or a 1-2000 solution of corrosive sublimate. The fibrinous

effusion following the irrigation leads to adhesion and consequent fixation of the fringes to the surface of the synovial membrane, where less harm will result from their presence. A midway course of clipping away the inner prominent fringes, selecting those which are in a position to become pinched, and then irrigating the joint and instituting drainage is useful in cases where irrigation alone has failed. The limb is put up on a posterior splint for ten days, at the end of which time the drainage tube is removed permanently, the splint abandoned, and passive movements made to avoid adhesions.

Cases of loose bodies in joints likewise present a group of symptoms not unlike those already detailed, when occurring in the knee joint. A loose body may be the result of an accident, a portion of the articular cartilage being detached from the underlying bone. They usually develop, however, from embryonic cartilage cells, in the synovial membrane and spring from some projecting fold of the latter, to which they remain attached by a delicate thread-like pedicle until some accidental movement results in tearing them loose. It would appear that they continue to increase in size, even after all organic connections with the synovial membrane have been severed.

The interference with the function of the joint varies according to whether the body has become severed or is attached by a long or short pedicle. When entirely detached, or if the pedicle is sufficiently long to permit of considerable range of movement, it may become engaged between the joint surfaces and give rise to sudden attacks of intense, agonizing pain and loss of function. The "locking" of the joint is complete for the time being, and after this has been relieved there may remain some disability for a time, and more or less effusion into the joint. Even when the pedicle does not become sufficiently elongated to

permit of the loose body becoming caught between the joint surfaces, there is usually more or less interference with the movements of the limb and effusion into the joint.

The treatment consists of removal of the loose body by arthrotomy. The body should be identified before the patient is anesthetized, for the reason that it occasionally slips to the posterior portion of the joint cavity behind the femur, in which situation it will be beyond the reach of the surgeon without an unjustifiable mutilation of the joint. The patient can usually identify and fix it in position with the finger, after which the surgeon, after a preliminary infiltration cocainization of the skin, overlaying the loose body, transfixes the latter with a needle and thus secures it. An incision is then made directly upon the body, the capsule opened, and the loose body extracted by means of a tenaculum forceps. If the opening in the capsule is large, it may be sutured separately, and the skin-wound closed. Usually, however, a suture or two in the skin suffices, or a strip of heat-sterilized adhesive plaster will answer the purpose.

The joint should be subjected to passive movements as soon as the wound has healed, in order to prevent the formation of adhesions. If care is taken during the operation to prevent the entrance of blood into the joint, troublesome adhesions are not likely to form.

Another cause for the condition under consideration is detachment of the ligamenta alaria. These folds of synovial membrane lie on either side of the ligamenta mucosa, as these extend from the intercondyloid fossa to the lower margin of the patella. One or both of these may be detached from their upper attachments, and lie loosely in the joint, where they may be caught between the articular surfaces and give rise to the symptoms of "internal derangement."

The treatment consists of removal through a curved incision which closely follows the inner edge of the patella, and which may be extended in an upward or downward direction if necessary. All bleeding of the skin portion of the incision should be arrested before opening the capsule. The incision should be sufficiently free to permit of exploration of the joint, in order to make sure that the symptoms are not due to either a loose body or papillary synovitis. The loose ends of the detached ligament should be cut off close by curved scissors and removed. The wound is closed and the after-treatment conducted in the usual manner. No ill results follow the removal of these folds of synovial membrane.

Lastly, we have to deal with a fourth class of lesions of the knee joint in which the three classical symptoms already dwelt upon occur. These consist of injuries to the semi-lunar cartilages. These injuries usually result from sudden twisting movements of the body while the weight of the later forces the corresponding foot firmly against the ground. Lesions of the semi-lunar cartilages may also result from direct injury, as shown by the second case herewith presented.

The character of the injury will vary with the amount of force exercised and its direction. The cartilage may be simply rendered more mobile by overstretching of its attachments, or one or another of its connections may be torn loose. It may be the seat of fractures, either partial or complete, the line of separation running either lengthwise or crosswise of the cartilage. Finally, it may be practically detached altogether.

The internal semi-lunar cartilage is more frequently displaced than the external. This is due, first, to the greater frequency with which the weight of the body is thrown upon the internal condyle when rotation of the body is performed during active exercise, as, for instance, in football

contests and games of lawn tennis; and, second, to the fact that this cartilage describes only a half-circle and is but indifferently secured from displacement by comparatively slight attachments to the tibia at its anterior and posterior extremities. The external semi-lunar cartilage, on the other hand, forms nearly an entire circle, and is prevented from slipping by its relations with the tendon of the popliteus muscle upon its outer side, where it is grooved for the passage of the latter; by its firm attachment by means of its anterior extremity to the spine of the tibia and the anterior crucial ligament, with which latter it blends, and by its attachment posteriorly behind the spine of the tibia. In addition to these attachments, which of themselves are more extensive than those of the internal cartilage, the anchorage of the external cartilage is reinforced by a strong fasciculus which passes obliquely upward and inward for insertion with the attachment of the posterior crucial ligament into the inner condyle. The posterior cornua also sends forward a narrow but well marked slip into the posterior and lower portion of the anterior crucial ligament, and gives off from its anterior border a fasciculus which forms the transverse ligament.

Thus it will be seen that while the external semi-lunar cartilage possesses a somewhat wider range of motion normally than the inner, its connections are such as to prevent it from exceeding its normal range of movement save under exceptional conditions. On the other hand, the internal semi-lunar cartilage, although less freely moveable, is more frequently exposed to conditions giving rise to injury and displacement, and at the same time its attachments are less stable and give way more readily. The circumference of each cartilage is loosely attached inside to the joint capsule by the reflection from off its surface of the synovial membrane.

Once the cartilage has been loosened or detached the symptoms may recur upon the slightest provocation. Occasionally following a first attack, the reaction within the joint is sufficient to lead to the formation of adhesions. These, providing the joint is kept immobilized, may suffice to fix the cartilage in its normal position. Not less than eight weeks will be required to accomplish this. Even in these cases the patient is prevented from indulging in active exercise from a well-grounded fear of recurrence, which is more than likely to take place, unless some form of apparatus is worn which will prevent rotation of the leg upon the thigh. This latter is cumbersome, at best. Unless there is some very positive contraindications to operation, an anthrotomy for the removal of the offending cartilage should be done for the recurrent cases, since experience shows that patients do not feel the loss of these structures at all. Attempts to fix the cartilage in position will only prove futile.

The technique of the operation for the removal of the semi-lunar cartilages is as follows: An Esmarch's bandage is applied, and the leg fixed at a right angle. An incision is made, commencing at about the level of the lower border of the patella, and extending downward parallel with the border of the ligamentum patellæ, nearly to the level of the articular surface of the tibia. It is then curved so as to follow the latter for about the same distance in the direction of the corresponding condyle. The skin and underlying structures are then turned back in a flap and the capsule opened in the space thus exposed by a horizontal incision. The cartilage is grasped by a tenaculum, its anterior attachments severed, and drawn out so as to enable the operator to reach its deeper attachments, which are divided with a blunt scissors. It is not always possible to reach these latter, in which case it will suffice to divide the cartilage itself as far back as possible.

If care has been taken to prevent blood from entering the joint, the wound may be closed at once, the capsule being sutured separately with fine catgut. If blood has entered the joint this should be wiped dry with sterile gauze. Irrigation of the joint should not be practiced, nor should drains be employed, since these will tend to the formation of adhesions. The limb is immobilized upon a posterior splint, with lateral splints of light bass wood, or put up in plaster of paris for a week, after which the ordinary gauze dressings suffice to restrain the movements of the joint as much as is required. The patient should be encouraged to move the limb as much as possible after ten days have elapsed. Should there be a tendency to restriction of flexion this should be corrected by passive movements and massage.

The following cases are offered in illustration of the operation for the removal of the internal semi-lunar cartilage:

Case 1. Slipping of the internal semi-lunar cartilage of both knee joints. Papillary synovitis of the right knee joint in addition.

Miss D. B. W. consulted me upon the recommendation of my friend, Dr. St. J. B. Graham, of Savannah, Ga., with the following history: With the exception of an attack of scarlet fever and adenoids, she was a healthy child up to the age of 12, when, in stepping from the street to the curb-stone a sudden pain and disability in one of her knee joints caused her to fall to the ground. Following this the knee became greatly swollen, and she was unable to walk for several weeks. In the course of the following year this happened upwards of a dozen times, first one knee and then the other becoming affected, each attack of this so-called "internal derangement" being followed by a short attack of synovitis, with disability lasting from one to three weeks. At 15 she wore silk elastic knee-caps, but the attacks continued without longer intervals than previously. Follow-

ing this Martin's elastic bandages were worn for a time, but no improvement ensued. In time it was noticed that the left knee was the subject of attack oftener than the right; and in addition the pain and inflammation were greater, and the disability of longer duration. Both knees were never affected at the same time. In time she came to learn that the attack took place when the knee was slightly flexed, the limb somewhat adducted and rotated outward, and the weight of the body thrown partially upon the inner side of foot, particularly upon the base of the great toe.

Different diagnoses were made in the case. She submitted to four months' treatment in the recumbent position, with the application of massage and electricity, for the purpose of avoiding a recurrence of the trouble, and the improvement of the atrophy to the limbs which had resulted from the many attacks of synovitis of the knee joint. Upon her return home from Atlanta, where this treatment was most faithfully carried out, two attacks occurred within the first week, in spite of the manifest improvement to the muscular structures of the limbs which had taken place. She now became a more or less confirmed invalid, seldom daring to venture out alone, for fear of an attack coming on in the street, and was compelled to practically renounce all social life.

In the summer of 1897 she consulted W. F. Carswell of Macon, Ga., who correctly diagnosticated the case, and advised the operation of removal of the internal semi-lunar cartilages. She was very averse to accepting this advice, however, and continued to suffer from the attacks. She calculates that the latter occurred not less than six times each year, in spite of any effort and care on her part to avoid assuming the position which she had learned was the exciting cause.

At this time she came under Dr. Graham's care with malaria, who recommended her to Saratoga Springs, N. Y.,

and requested her, while north, to consult me for her knee trouble.

She visited me in September, 1900. Upon examination nothing abnormal was discoverable about the knees, and reliance for the diagnosis was placed entirely upon the history as related. The conclusion was arrived at, however, that the attacks were due to slipping of the internal semi-lunar cartilages, and excision of both cartilages recommended. To this she finally assented, and was admitted to the Methodist Episcopal Hospital in Brooklyn, N. Y., for that purpose.

On November 6, 1900, the left knee was operated upon as follows: With the patient under ether the limb was rendered bloodless by means of Esmarch's bandage. The leg was then flexed to a right angle with the thigh, and while in this position an incision was made upon the inner edge of the ligamentum patellæ, commencing at a point about on a level with the lower edge of the patella, carried downward about an inch, and then curved for about the same distance toward the inner condyle. The soft parts to the capsule were included in this incision and the triangular-shaped flap with rounded corner thus marked out was dissected loose and turned back, where it was held by means of a sharp retractor. The angle and the horizontal edge of the incision being well retracted, a horizontal incision was made in the capsule and the joint entered. The internal semi-lunar cartilage was then seized with a tenaculum and easily drawn out of its normal position, where it was but loosely attached. Its elongated anterior attachment was then severed, and with blunt curved scissors passed along its superior surface, its posterior attachments were identified and divided and the cartilage removed. The greatest care was taken to keep the knee flexed, and to prevent any blood from entering the joint during th operation.

The capsule was sutured with catgut, and the skin incis-

ion with a subcuticular suture of linen thread. Sterile gauze dressings were applied, the Esmarch bandage removed, and the limb secured in a posterior splint.

The limb was kept extended upon the splint for a week, when it was redressed, the subcuticular suture removed, and the splint abandoned. Very slight reaction followed the operation, and the patient was permitted to move the joint at will after the first ten days, and to bear her weight upon it at the end of three weeks. Flexion and extension were perfect.

On December 11 the right knee was operated upon in a similar manner. Here, however, the meniscus was found to be less movable than that upon the left side. A fringe-like mass which had proliferated from the synovial lining of the joint at the site of the lower margin of the patella was found to be present, and was likewise removed.

The after treatment was conducted upon the same general principles as that following the first operation. The reaction was slight, and the patient was soon able to walk comfortably. It was found, however, that owing to the removal of the synovial fringes, this additional traumatism had resulted in the formation of adhesions which at first limited the flexion of the leg to a right angle. For this manipulation and massage at the hands of a Swedish masseuse were ordered. At the time of writing she is able to take long walks with no recurrence of her former trouble.

Case 2. Fracture and partial detachment of the internal semi-lunar cartilage of the knee joint. The patient, J. W., age 34, male, was admitted and referred to my clinic at the New York Polyclinic Hospital and Medical School, January 8, 1901, with the history of having received a blow one year previously, a heavy iron beam falling against the inner side of the right knee. The knee was never much swollen, nor did it ever entirely incapacitate

him from work, but ever since the accident there has been more or less constant pain and weakness of the joint.

Upon examination a flattened movable body was discovered on the inner side of the joint at the level of the articular surface of the tibia. This became more prominent but less movable when the patient resting upon the feet would strongly flex the legs upon the thighs, and the thighs upon the abdomen (the "lumker" or squatting position); when in this position he could not rise without assistance. In the sitting position with the leg extended and the parts relaxed the loose body became less prominent but more movable.

A diagnosis of partial detachment of the internal semi-lunar cartilage was made and operation advised. The latter consisted of exposure of the tibial head by means of a curved incision over the inner side of the knee with its convexity directed forward. All the structures to the capsule were included in this incision. The flap was dissected back and the capsule opened by straight incision running from before backward through the middle of the space thus exposed, and parallel with the articular surface of the tibia. The limb was strongly flexed throughout the entire operation, and care taken that no blood entered the joint.

The interior of the joint was well exposed by this incision, and the partially detached internal semi-lunar cartilage easily identified. The latter was seized upon its edge, drawn forward and inward, and loosened from its remaining attachments posteriorly by means of a small pair of blunt-pointed scissors slipped into the joint and along the cartilage as a guide. The attachments of the anterior extremity had been torn loose by the accident.

The incision in the capsule was closed by a running suture of catgut, and the skin incision by a subcuticular suture. The movements of the joint were restrained for a few days by bass wood splints, after which he was permitted to move the joint at will. In a fortnight he was permitted to make

use of the joint, and was discharged cured. At the present time he reports himself as entirely recovered as to pain and function of the joint.

The specimen removed showed a partial separation or fracture of the anterior extremity of the cartilage with a proliferation of new cartilage the size of a finger nail, in the attempt at repair.

According to Fizzoni, in case of injury to or loss of substance of the cartilage of joints, which is not furnished with perichondrium, a fibrous connective tissue cicatrix develops, which is subsequently changed into hyaline cartilage. In this respect the processes of repair differ from that which takes place in cases of fracture of cartilage in which perichondrium is present, as, for instance, in the trachea.

In this case the newly found cartilage was evidently proliferating in the direction of the position of the semi-lunar cartilage when in situ, as if to supply the place of the latter which had become detached anteriorly and forced forward and inward as well as partially divided.

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THE PRONATED FOOT.

DR. MICHAEL HOKE, Atlanta.

From a mechanical point of view, the foot is the most splendid piece of anatomical structure in the human body, in spite of the fact that the dress customs of civilization have shown little regard for its needs, if its strength is to be considered a desirable thing. The relation of its bones, its ligamentous braces, its muscular suspension, together make up a series of flexible elastic arches which, for precision of design, can find no counterpart in nature.

Its function is to support the body weight, and as a lever to make locomotion a movement of poise, activity and grace, free from all pain.

Its attitudes, its ranges of motion controlled by and balanced by its muscles and the muscles of the leg, the fashion of its covering, the manner of its use, are all factors in the preservation of its integrity, as an efficient and lastingly useful piece of mechanism.

Like all complicated pieces of mechanism, its component parts must be in a normal condition, the muscular power must be sufficient and it must be properly used if it is to be serviceable.

If any of these conditions is lacking the foot is no longer effective as a lever; its spring is lost, the muscles which control its balance act in a faulty manner, no longer distribute the body weight so that the foot as a unit bears it; the attitude of passive support is assumed, it yields, the foot is weakened; pain, awkwardness and disability follow.

The types of non-deformed but structurally weakened feet are many, indeed each foot has its own structural individuality, thus nearly all cases falling under a type of defect, present individual problems for solution. But each type having its own definite dynamical forces which produces the defect, has its own general principles to be followed as a basis for treatment intended to correct the defect and relieve the symptoms.

I have elected to speak of the pronated foot.

It is the most common type of the weakened, non-deformed foot-producing pain that exists without change in the bones of the tarsus and metatarsus. The pronating force is active in the production of flat-foot, difficult there to overcome, hence of interest. It presents, too, one of the most interesting problems in that part of orthopedic surgery concerned with the application of apparatus for the correction of a faulty anatomical position attended with disability. I have selected it also because this vicious position plays an important and sometimes dramatic part in the relief of symptoms in feet, ankles, knees and hips, that, having passed through a severe acute or chronic arthritis of any nature, are painful, not from disease still existent, but from the fact that the relation of the bones forming the joints has been so altered that the leg transmits the body weight and the feet sustain it in a manner productive of joint strain.

I shall confine myself as briefly and strictly as possible to only those anatomical, dynamical and mechanical principles concerned in permitting and correcting the trouble.

The clinical importance will be shown by a report of a few typical cases. It is necessary first to picture the best type of foot. The position of strength is that position in which the foot acts most effectively as a lever; the position of weakness, whether unconsciously assumed or forced on the foot by some of the many impositions possible, is that

position in which the foot as an anatomical lever is placed at a disadvantage to do its work. All of these attitudes are simply expressions of how the body weight is borne.

Von Myers' rule formulates the accepted ideas as to the proper relation in position of the foot to the leg: "The line of the crest of the tibia if prolonged downward should pass over the dorsum of the foot to the cleft between the second and third toes, the inner border of the great toe, the inner malleolus and the inner condyle of the femur being in the same plane."

This agrees with the best type in nature.

The foot of an infant shows unimpaired muscular power in the movement of all of the toes. The great toe can be voluntarily adducted, the fifth abducted, all can be markedly flexed. There is a space between the great and second toe. The toes are straight. The infant adducts frequently the great toe, demonstrating great freedom of its motion. The line of the extremities of the toes forms a curve with the greatest point of convexity at the end of the second toe. The line of the heads of the metatarsals present the same curve. The line of the inner edge of the foot is apparently straight; though small, is a perfect miniature of the strong foot, its toes straight, its motions free. Young children, in beginning to walk, always place the feet with their axes parallel or with a slight toeing in.

The inner edge of adult feet that have not worn shoes nearly always appears straight; the great metatarsal is comparatively greatly developed; the prehensile strength increasing with age up to a certain limit.

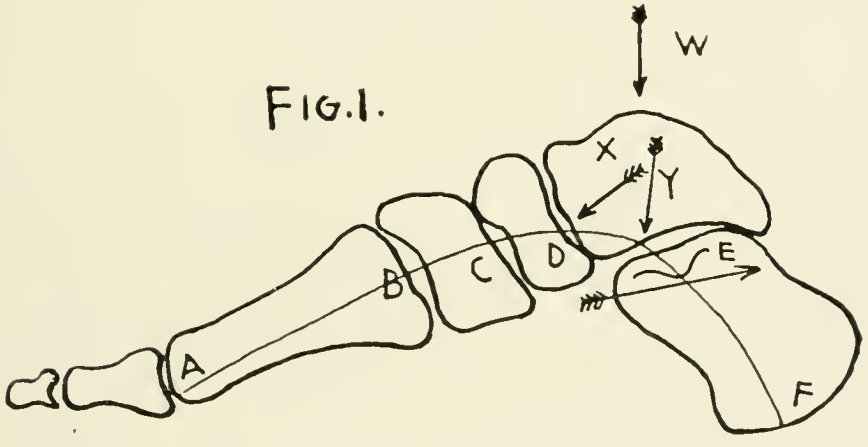
Barbaric models and Egyptian sculptures, types of the barefooted and sandal-wearing people, are characterized by the parallel relation of the axes of the feet in the standing position, by the straight inner edge of the foot and straight toes. The early Indian, Burmese and Egyptian art show this to be true, and the classical type of sculptures represent

the line of the inner edge of the foot as always straight with an extremely small angle of divergence of the axes of the feet in the standing position. This is true of the Greek and Roman art.

Individuals who have never worn shoes walk with the feet directed almost straight in front. The moccasin-wearing and barefooted races of to-day with whom foot activity plays an important part in obtaining a livelihood, either slightly toe in or walk straight. The muscles of the front part of the foot are strongly developed. If the gait of an athlete be observed, it is seen that the feet are advanced in a straight line or with a very slight angle of divergence. It is interesting here to note that the Talipes equinus deformity with the front part of the foot adducted, is the strong type. Individuals possessing this deformity move actively, though awkwardly. Contrast this with the slow, halting, rolling, weak gait of the valgus type of deformity with the foot abducted. As shown then by the barefooted and sandal-wearing races of antiquity and to-day, by those who are active with strong muscles in the legs and intact feet, the position of strength is with the feet parallel, that is, with the front part of the foot adducted, the inner edge of the foot straight, apparently with great prehensile strength. I wish you to bear this in mind: it has its clinical significance and is to be contrasted with the weakened position to be described. The reasons that this supinated position is the position of strength are as follows:

The foot has two anterior posterior arches, an inner and an outer one. They are distinctly opposite in character of construction and hence in function. The outer one is composed practically of only two bones, the os calcis and cuboid, closely bound to one another with little play of motion between them at their articulation. The metatarsal of the fifth enters into the formation of this arch with the foot in the non weight-bearing po-

sition, but must be excluded from it in the weight-bearing position, for then throughout its whole length it rests upon the ground. This arch is short, compactly built and always rigid. The inner arch, twice as long, with five bones entering into its formation, os calcis, astragalus, scaphoid, cuneiform and first metatarsal, with several muscles attached to it, flexible, possessing a wide range of motion compared to the outer, is constructed not for passive weight-bearing, but to sustain a great and sud-



Rt. foot, inner longitudinal arch. W—Weight of body. X and Y—Components of body weight falling on inner arch tending to pronate the foot; Y is resisted by tendons (arrow) passing beneath sustentaculum tali, E; Y produces valgus rotation of the os calsis; X, the abduction of the front part of the foot, etc.

den shock, without jar, to yield slightly and then rebound to its former position in the final spring given to the completion of the step. It is this arch and its attached muscles that make the gait active and springy. The outer arch is built then to stand passive weight bearing all the time as in standing and very seldom does it ever yield. The inner arch should bear the weight only momentarily in the completion of the step in walking, and quickly shift the body weight outwards to be borne again by the outer arch as soon as the foot is placed to the ground. This can be demon-

strated: Make yourself conscious of pressure on the sole of the foot in standing with the foot in the supinated position, axes parallel, front part of the foot adducted. You feel the pressure under the heel and outer portion of the foot and beneath the heads of the fifth, fourth, third, and, to a lesser extent, the second metatarsal. You are conscious in this position of very little pressure under the head of the great metatarsal. It is not felt there to any extent until the heel is raised in taking a step. More convincing is to place an individual on a glass table in the standing position with the foot in the strong position, supinated as before described, the axes parallel so that Von Meyer's line may be drawn. Then the dead white area of pressure, if you look at the under surface of the foot, through the glass, is seen to extend over the heel and from the fifth metartarsal into the second, as above mentioned. This is the strong position, for when it is assumed the body weight is borne by the strong unflexible, unyielding outer arch, the inner arch bearing very little of it.

When, on the contrary, the weight is borne on the inner arch, sufficiently to tire out the tibiales, flexors, and adductors of the great toe, it yields from this passive support to which it is not adapted in structure, its ligaments become stretched and the excessive pronated foot with its train of symptoms and lameness results.

This vicious position is the attitude in which, in the habitual standing position, the foot rolls over inward instead of being supinated, the inner edge of the foot shows a reverse curve with its convexity inward instead of a straight line or slight curve with its convexity outward, the front part of the foot is abducted instead of being adducted, and the outer edge of the foot rolls up, the front part of the foot being rotated inward as well as abducted. The line drawn through the crest of the tibia and over the dorsum of the foot representing the direction of action of the body

weight, passes off the inner arch of the foot at the astragalo-scaphoid articulation instead of at the cleft between the second and third toes. The dead white area of pressure

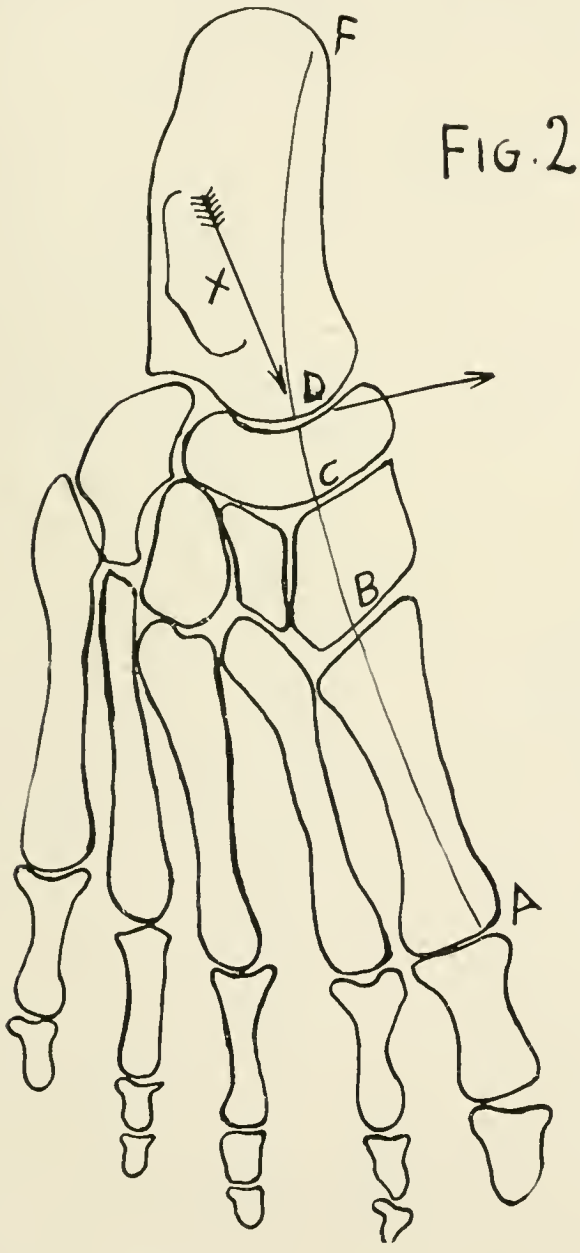


FIG. 2

Skeleton of foot viewed from above. X tends to reverse arch A′ B′ C′ D′ F′ making it A‴ B‴ C‴ D‴ F‴ seen in fig. 3 on the character of this arch as seen in the pronated foot.

seen from beneath the sole of the foot through the glass plate shifts inwards until the most decided points of pressure are beneath the heel and the head of the great metatarsal. This is the result of the body weight being sup-

ported by the weak inner arch, applied at its weakest portion, the astragalo-scaphoid articulation. The inner arch is not constructed for this kind of strain and it yields with pain. Always, even in strong feet, in standing and walking there is a slight downward and inward yielding of the inner arch which may be called physiological pronation. Its physiological limit cannot be determined in degrees, for it varies in the two feet of an individual, still more so in different individuals. The pronation with symptoms is the same motion carried further until it produces strain, the same in kind, but excessive in degree.

Lovett has analyzed the movement of the bones in the pronated attitude by a study of 41 X-ray plates of painfully pronated feet. Results of his studies may be summed up as follows:—

(1) The appearance of the feet is as represented in the photograph;

(2) The foot as a whole rotates beneath the astragalus into the position of valgus;

(3) The astragalus is rotated inward on a vertical axis so that its head moves inward and backward, its body outward and forward. There is at the same time plantar flexion of the astragalus by which its head sinks into the sole. This is the keynote of the position;

(4) There is some outward movement of the cuboid;

(5) The front part of the foot is abducted, moving outward, the tendency being for the foot to break open outward (if I may use the term) at the astragalo-scaphoid articulation as the hinge of motion;

(6) Anterior to the astragalo-scaphoid articulation there is no change in the relation of the bones, the whole front part of the foot moving en masse;

(7) The os calcis rotates in a valgus position.

The detailed mechanical and anatomical explanation of the strain position and of excessive pronation is best seen

by examination of a skeleton. Consider the body weight to be a force (w, fig 1) weight acting downward in the direction of the axis of the shaft of the tibia; it is opposed by an equal force acting oppositely upward in the direction of the

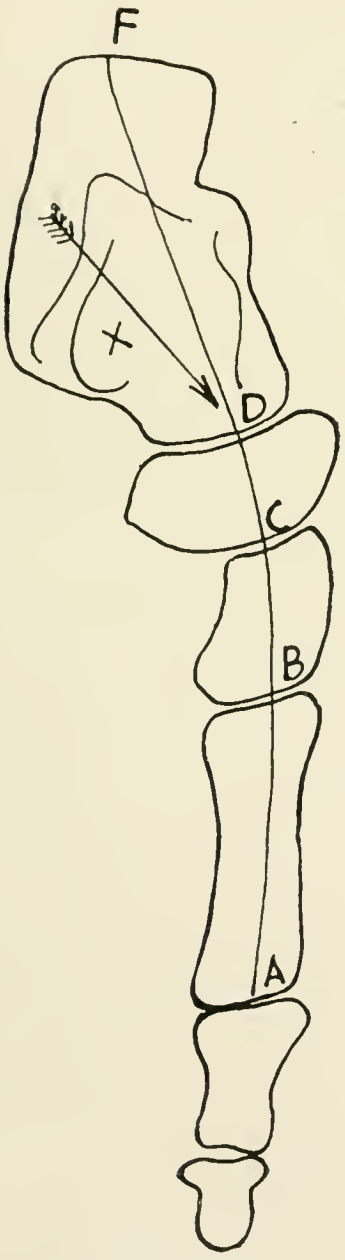


FIG. 3.

Inner row of bones of pronated foot. Note that A‴, etc., is the reverse of A′, etc., as seen in the normal foot.

shaft of the tibia. The same is true with the foot in regard to the direction of the body weight forces acting through the axes of the small bones of the tarsus and along the

shafts of the metatarsal bones. The strength or weakness of the foot is determined by the movement permitted the astragalus.

The astragalus has no muscular attachment; it serves simply to transmit the force of the body weight from the end of the tibia to the foot, splitting it up into a number of components, some passing behind, some forward.

In the strong position, the supinated position above described, as shown by Golobiewski, the astragalus is tilted a little downward at its outer border so that most of the body weight through it is transmitted directly to the os calcis, thus the force of the body weight passes backward to the tuberosity of the calcis to the ground and from the calcis in front to the cuboid, and from thence to the fifth and fourth metatarsal, the second and third metatarsal receiving their share of the weight through the head of the calcis to the outer end of the scaphoid to the middle cuneiform and thence to their own shafts. Thus very little weight is left in the standing position to be transmitted to the inner arch. Note here that there is no plantar flexion or inward rotation of the astragalus as seen in the pronated foot, and that from the relation of the bones in the inner arch to one another of the astragalus, it is not a difficult thing for the flexors of the great toe, the small toes and the tibiales, to bear what weight may be transmitted to the internal arch in this strong position. The result of that little weight being the physiological degree of pronation recognized as normal. If, on the contrary, the front part of the foot is by habit held in the abducted position so that Myers' line (fig 6) passes off the inner arch at the astragalo-scaphoid point, the body weight being applied as this fact indicates, the tibiales and the other muscles attached to the inner arch, the astragalus is allowed to rotate inwards. Then most of the body weight is applied to the inner arch. This is the pronating force. The astragalus splits it up into two

components, one of these (Y, fig 1) acts downward; it falls chiefly upon the inner half of the os calcis and the susten-

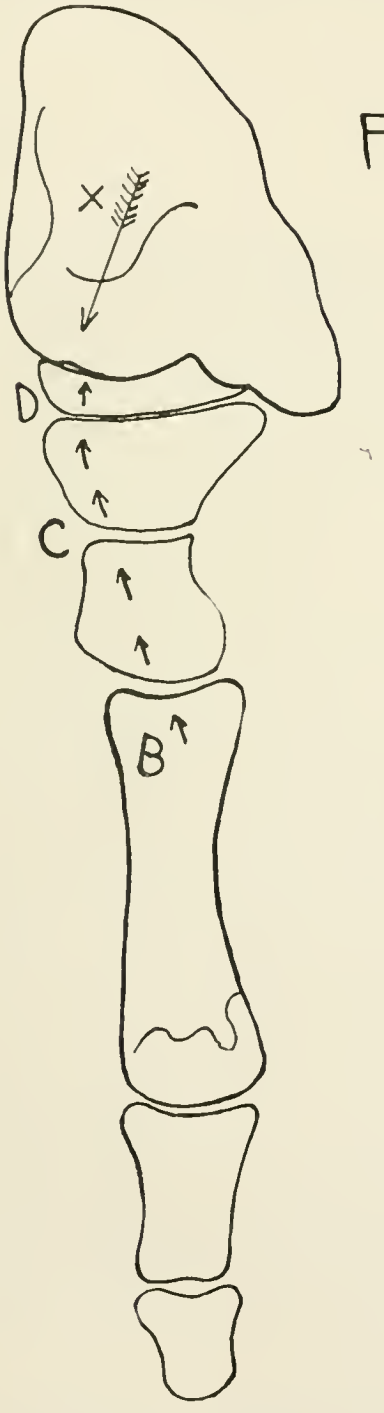


FIG. 4.

Under surface of inner row of bones, right foot. shaded lines = tuberosities. Small arrows show how flexion of the great metatarsal by the lines of its impulse along the tuberosities reaching D, is equivalent to a force acting directly opposite to the line of action of X

taculum tali. The only direct opposition it has is from the tendons of the muscle which passes beneath the sustentaculum tali, use it as fulcrum for their action, lifting up the

sustentaculum tali and prevent the calcis from rotating in a valgus position, so long as the tone of these muscles is normal. If these muscles are strong and the foot is used in the mechanically strong attitude, supination, (fig 5), they prevent pronation at this point from being greater than the physiological degree, but if conversely from the assumption of the disadvantageous position with the greater part of the body weight thrown on the inner arch Y, is so greatly increased that they are not strong enough to oppose it, they play out, the weight falls upon the ligaments at this point, then pain begins there and that part breaks down.

The other component acts downward, forward and inward, in the direction of the axis of the astragalus, from behind forward, and is applied at the inner end of the medio-tarsal joint at the astragalo-scaphoid articulation anterior to the point of support of the astragalus by the os calcis beneath. This then must be opposed by structures anterior to the end of the astragalus. The tendency of this force is to crush arch A. B. C. D. E. F. downward, forward and inward, at D, to convert arch A'B'C'D'F' into A''B'' C'''D''F'' to roll the foot inward, as shown in the photograph, to abduct the front part of the foot and at the same time to rotate A. B. C. D. in a valgus position, assisted by the peroneous longus which, attached to the base of the great metatarsal, pulls the forward column of the arch outward at B. This force then produces all of the clinical signs of the pronated position but the valgus rotation of the os calcis. Acting and outward at D. It is seen that flexion of A. B. increases and strengthens this arch; also, that adduction strengthens arch A'B'C'D'E'. This is accomplished by the flexer brevis and longus pollicis and by the adductor pollicis. Much more flexion is possible than adduction in the normal foot, consequently to permit no more than the physiological limit of pronation the foot must depend

chiefly upon the flexors of the great and small toes. The reason why flexion of the great metatarsal in the supinated position overcomes the inward yielding at D, thus preventing excessive pronation, is due to certain anatomical bony landmarks, of whose importance the anatomical books do not speak, to the relative position

FIG. 5. Note the abduction of the front part of the foot—that the line drawn through the crest of the tibia passes off the foot at the astragalo-scaphoid articulation. The points of pain and detail are seen in description of case 3.

of the small tuberosity on the posterior end of the great metatarsal to the tuberosity of the internal cuneiform, its whole lower border, and this tuberosity to that of the scaphoid as represented by the shaded areas. The tuberosity of the great metatarsal faces downward, the tuberous border of the internal cuneiform faces downward at its articulation, with the great metatarsal then inclined upward and inward. The tuberosity of the scaphoid faces inward, so that when the great metatarsal is flexed by its muscles attached to A, the thrust of its little tuberosity by the time its effect is transmitted through the internal cuneiform and scaphoid against the astragalus is not to lift the latter upward but upward, backward and outward, in direct opposition to the direction of the pronating force X. Thus by this relation, flexion of the great metatarsal accomplished what without this relation of the tuberosities would necessitate the position A'B' to be changed to A'' and B''. It is thus seen how the prehensile power of the great toe, by that meaning the power of the flexor longus and brevis and the adductor pollicis assisted by the tibial muscles, prevents the pronated position, sustains the body weight temporarily, but must give out if subjected to constant strain. In the majority of cases presenting themselves for treatment on account of pain, the weak attitude with the front part of the foot abducted was first assumed unconsciously or forced upon the foot by using bad shoes. From continuous use of the foot in this position the prehensile muscle acting at a disadvantage, the inner arch bearing the body weight gave way with ligamentous stretching. In those cases secondary to acute or chronic disease in the ankle, knee and hip, the adducted attitude was assumed because that is the position in which one may walk with greatest comfort with disease of the ankle, knee and hip. The reason of this is, that the body weight falls entirely on the heel, and the patient uncon-

sciously shifts it there by the attitude to keep from bending the diseased ankle, knee or hip. Later the attitude became permanent, partly from habit and partly from a changed relation of the bones forming the joints mentioned. The production of joint strain is due to the unstable foot basis in the pronated attitude. To present the clinical side of the condition, which may perhaps alone be interesting to you, I submit the report of the following cases. The details of these cases will present the symptoms, physical

FIG. 6. Steel splint encased between two slips of leather and riveted. This is the form of splint used with these cases. The splint slips in the shoe like an insole.

findings, method of examination and treatment:

Mrs. B.:—Several years ago she increased rapidly in weight, gaining about forty pounds in nine months; she took very little exercise; led an apathetic life. The first thing that was noticed, was great weariness from little exertion, then both feet began to hurt, the pain being located at the inner and outer side of the ankle, at the attachment of the posterior tibial to the scaphoid and along

the course of the tendon of the peroneous longus as it winds across the outer surface of the os calcis. At night the knees and outer portion of the calf of the leg ached a great deal; this continued for about a year; she was able to get around of course. It was thought that she had rheumatic gout. Both feet were pronated, the toes turned out, the ankle rolled in, Myer's line passed off the internal arch at the astragalo-scaphoid articulation; dorsal and plantar flexion was possible to a normal limit, voluntary adduction was limited, the effort feeble; there was no flattening of the arch; the peroneous longus was in a state of spasm, adduction producing pain; a foot plate was applied, the highest lift of the plate being carried forward to the inner cuneiform; the tarsal pain was instantly relieved. The knee pain and aching in the leg disappeared in about a month after the application of and constant use of the foot plate. The relation of the pronated foot to the pain in the knee and calf of the leg is definite clinically, and can be explained anatomically and mechanically with perfect accuracy, but its demonstration is complicated and tedious, hence I simply refer to it. She will have to wear the plates all the time. This case and the following illustrate the most common type of the trouble.

Case No. 2.—Mrs. G.:—She complained that she could not walk further than a few blocks without giving out; in church she had to stand first on one foot then on the other; she had pain in the instep in both feet and backache; there was no knee pain; the feet were pronated but perfectly mobile; the ranges of motion, both voluntary and passive, were normal; there was no spasm; plates were applied; she can now, by using the foot plates, walk four or five miles with only that degree of weariness to be expected from this amount of exercise by a woman. She has to wear the plates only when walking a great deal. Here the interesting point was the relief of the pain in the back; its

explanation is anatomical and mechanical, too, but can only be demonstrated by a complicated examination of the relation of the angels of the medio-tarsal, ankle, knee and hip joint; it may be passed over for the sake of brevity by the statement that the position of pronation so acts that the back muscles are tired out to the point of aching with comparatively little exertion.

Case No. 3.—Mr. S.:—The photograph is taken of this case; his business kept him on his feet all day. At the time he was seen there was very great pain in the instep, at both sides and behind the ankle; in the heel and at the attachment of the plantar fascio and the tendon Achillis. The ankle was puffed behind, there was a good deal of pain across the ball of the foot just external to the attachment of the patella tendon; the patient walked with great pain; without rising upon the toes; with knees flexed, feet wide apart, seeking a broad base of support, like the gait of a feeble old man; all the motions of the feet were painful; dorsal flexion was limited by the spasm of the soleus; voluntary adduction was almost impossible; the tibial muscles being almost paralyzed by the strain they had borne; there was spasm of the peroneous longus, which, with no opposition on the part of the tibial muscles, held the front part of the foot in abduction. This represents the severest type of what one might term acute pronated foot, approaching flat foot in its anatomical defects, with all the symptoms of that condition. Plates were applied, all the muscles of the feet, leg and thigh had to be gradually re-educated to take up their proportionate share in sustaining and propelling the body; he was put to bed; given massage, electricity and exercised every hour and a half, going back to bed immediately after the exercises, in order to relieve the foot of passive weight-bearing; the feet were put through the normal motions twice daily; recovery was gradual, necessarily; after two months' treatment he was able to

return to his business; at present the right foot is perfectly sound; he does not wear a plate in the right shoe; there is no pain in the knees; the left foot is a little painful where the peroneal tendon winds around the cuboid if the plate is not worn in the left shoe, but with the plate in the left shoe, there is no pain: this left peroneous longus is still somewhat spastic; the spasm will disappear when the voluntary adduction becomes a little stronger. His manner of walking now shows nothing wrong, except that it is not quite as active as it should be. In a little while he will regain entirely his normal strength and activity.

Case No. 4:—The effect of the pronated foot in this case was quite dramatic; the patient gave a history of having had a severe boil on the right patella in 1889; this followed an injury; the history of this suggested a suppurating prepatella bursitis; it discharged for about six weeks; examination of the site of this abscess did not suggest that there was originally any bone disease. The knee at the time of the trouble was bandaged, a posterior splint extending from the buttock to the ankle was applied. It was thought that there was a connection between the abscess, the patella and the joint. After the place had healed, the joint was immobilized for about eight weeks; the pain ceased after the healing and the muscles of the leg had atrophied from disuse. At the end of this period, fourteen weeks after the beginning of the trouble, he started to work clerking in a store, standing on the leg all day; the pain in the knee joint immediately returned; it was the same, but from a different cause now; though the attention of the patient and the attending physician was centered upon the idea, there was still a disease in the knee joint. He had begun to use the leg with the foot in the pronated position, and this was the cause of the knee pain; there was some pain, too, though little, in the ankle. He was advised not to use the leg much, and since 1889 had walked with a crutch and cane.

He presented himself for treatment last October; the motions of the knee, hip and ankle were perfectly normal; the leg was atrophied and flabby, the foot was pronated. This was the whole trouble. A foot splint was applied to properly support the foot; the knee and ankle bandaged with flannel bandages to give some support to them; the leg was massaged; the cane was at once discarded; he was put on exercise, tonics, the exercises being gradually increased. In six weeks the crutch also was discarded; the patient walked with perfect comfort and a natural gait.

A HYSTERECTOMY WITH COMPLICATIONS.

J. G. EARNEST, M.D., Atlanta.

J. W., a negro woman, aged thirty-eight, menses first appeared at age of fourteen, married at eighteen, has never been pregnant. Menstrual period normal and painless until six years ago, when she began to menstruate too frequently. About that time she noticed a small, hard mass in the abdomen, above the pubis on the right of the median line. This continued to grow until it appeared a hard nodular mass the size of an adult head, with an offshoot reaching well up into the right hypochondrium, at the time of admission to the Grady Hospital on Feb. 18, 1901. The uranalysis showed a dense white cloud of albumen and numerous casts, both hyaline and granular. There was no swelling of the lower limbs or puffiness about the face. Her general appearance was fairly good, in spite of the fact that she had, for some time past, had frequent severe headaches, with chilly sensations, and night sweats. On account of the amount of albumen and casts in the urine, she was put on lithia water and salines for ten days. There was slight improvement, and so it was thought best to operate without further delay. The absence of general anasarca or even edema of lower limb made it reasonably certain that but one kidney was involved.

Feb. 28th, after the usual preparation, the abdomen was opened, under chloroform, in median line from umbilicus to pubis. Some adherent omentum was tied off, and a coil of adherent intestine loosened. The ovarian arteries were tied with medium silk, the broad ligaments cut through

and with the bladder stripped down, the uterine arteries clamped, and the mass cut away, leaving but a thin segment of the cervix in the pelvis. The uterine arteries were tied with fine silk, the cervix closed with medium catgut, and the serous membrane closed over the raw surfaces with fine catgut. The abdominal wound was closed with through and through silkworm gut stitches. The stomach washed out, and the patient was put to bed in good condition. On my rounds the following day, I found the patient had passed fifty-seven ounces of urine with specific gravity of 1040, due to presence of sugar. She was ordered one-quarter grain Codeine Sulph. every four hours. Gradually the sugar grew less, and by the end of the week had entirely disappeared. Knowing the uncertainty of prompt union in cut surfaces when saccharine diabetes exists, I had intended to allow the stitches in the abdominal wound to remain ten or twelve days; but neglected to so instruct the house surgeon, so that on the eighth day after the operation I found that he, following my usual custom, had removed the stitches, and reported the wound healed. The following morning I was called up and informed the wound had opened. I had the patient sent immediately to the operating room, and found that not a vestige of union remained. A careful examination showed that the cut surfaces of the abdominal wall had been accurately adjusted, and slight union seemed to have taken place, but was not strong enough to hold. The surfaces were freshened with knife and scissors, the peritoneal surfaces were united with a continuous catgut, the muscular layer with interrupted buried kangaroo, and the skin and superficial fascia with silkworm gut, which were not removed until the fourteenth day after insertion.

When the patient left the hospital, April 8th, the wound had every appearance of permanence.

REPORT OF CASE OF COMPOUND FRACTURE OF LOWER JAW.

R. P. CORTELYOU, M.D., Marietta, Ga.

The patient, Chas. Galagher, employed at the Brumby Chair Co., Nov. 7, 1900, was ordered to change a belt from some shafting, and in attempting to do so, before the machine had been stopped, while endeavoring to push the belt from the pulley with a chair rocker, was caught in the machinery and thrown against a post, striking the right side of his face, thus causing the injury. On examination I found a transverse fracture of the body of the inferior maxilla on the right side, between the first and second molar teeth. There was marked crepitus, and free movement at the point of fracture, with depression of the anterior portion of the jaw. There was also an external lacerated wound of the muscular tissues extending through the mucous membrane, about three-quarters of an inch long, with some hemorrhage from the gums. A temporary bandage was placed to keep the parts at rest as much as possible during the night and an anodyne given.

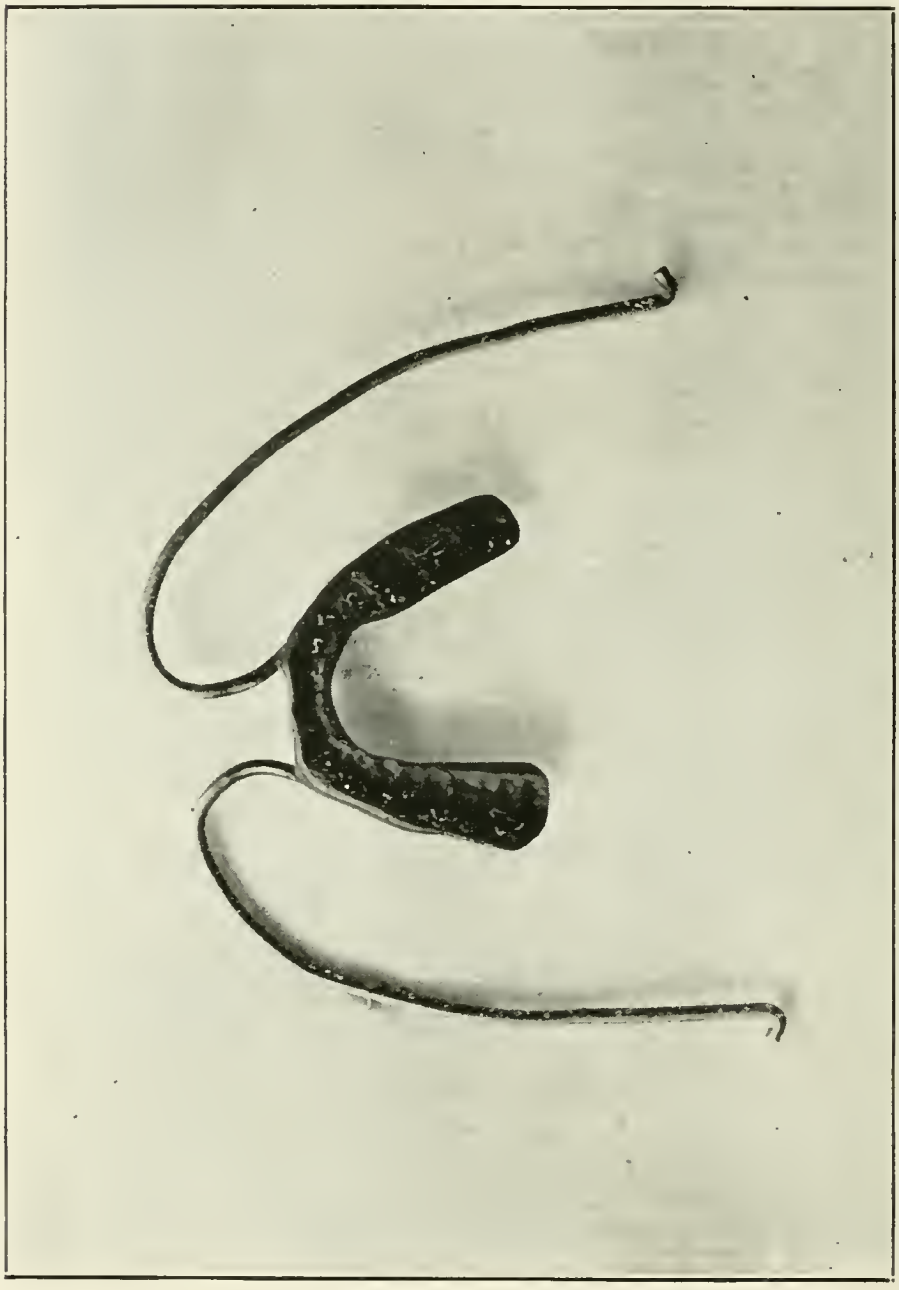
The next day in consultation with Dr. H. V. Reynolds, it was thought best to have a dental splint made and of such shape, if possible, to avoid the necessity of extracting any teeth for the purpose of giving nourishment. Also that the lacerated wound might receive the needed attention without disturbing the dressing. Dr. Duncan Reynolds, dentist, after several attempts, succeeded in getting a very complete plaster impression of the whole lower jaw. A dental

plate was then made to fit over the teeth with a strong piece of steel wire moulded into the plate on both sides and

projecting from the mouth and then bending back as far as the ears.

This plate was placed in the mouth on the teeth, the fractured ends brought in perfect apposition and held there by

a bandage passing from wire on one side under the jaw to the other side, thus pressing the jaw against the dental



splint and keeping it in perfect line and free from all motion of the fracture.

This also permitted the patient to open his mouth for an inch or more, thus enabling him to take his liquid nourish-

ment without difficulty. The lacerated wound could also be treated without interfering with the splint.

A mouth wash of Borolyptol and Listerine was ordered to be used freely, and the external wound was dressed antiseptically as nearly as possible.

Liquid nourishment was given as demanded.

After five weeks the splint was removed and union had taken place and in perfect line.

This form of dressing thus filled perfectly all the needs of the case and gave patient some movement of jaw, enabling him to use the antiseptic mouth wash and prevented the necessity of extracting any teeth. It also was as comfortable to the patient as any dressing could be made.

CÆSAREAN SECTION, WITH REPORT OF A SUCCESSFUL OPERATION ON PATIENT WITH A RACHITIC PELVIS.

E. C. DAVIS, M.D., Atlanta, Ga.

The history of this operation is replete with interest, for it takes its place with the oldest operations performed, long antedating the surgery of the barber and that of the true surgeon, who came later. The name is usually supposed to have originated from the statement that Cæsar was ushered into the uncertainties of life through the medium of this operation, but Pliny claims that the name originated not from Cæsar's birth, but from cædere—meaning to cut, and that Scipio Africanus and Manilius were both delivered by this operation.

Numa Pompillius is accredited with the authorship of a Roman law requiring all pregnant mothers who died to be delivered of the child before burial.

For a long time this operation was considered only justifiable upon a moribund mother in the hope of delivering a viable child.* "The first recorded operation on a living woman was performed in the year 1500 in Switzerland, by one Jacob Nufer, a butcher, who is said to have saved the life of his wife in this way." It is also stated that he operated many times. Later, this passed from his hands to those of the barbers, who were the forerunners of the surgeons.

In 1610 Trautman, a German, delivered a child through

*System of Obstetrics. Jewett.

an incision in the uterine wall, his case being one of hernia of the gravid uterus. "In 1881 Rousset, a Frenchman, published a report of nine cases, to which Caspar Bauhin added six in his Latin translation." Many have contended that these were not true Cæsarean sections, but Celiotomies for ectopic pregnancies.

The maternal mortality was so great in the early history of this operation that Ambrose Pare and Mauriceau condemned it, and it fell into bad repute for a long period, only to be revived about the beginning of the last century, when uterine sutures were first advocated. The maternal mortality still remained excessively high until Perre suggested and put into practice the amputation of the uterus and inclusion of cervical stump in the abdominal incision; this was done in 1876."

The greatest advance was made, however, in the perfection of the operation by Sanger of Leipsic in 1882, when he proposed the closure of uterine wall with multiple sutures.

Since that time the operation has varied only in the methods of closing the incision in the uterine and abdominal walls and in the materials used for this purpose, in addition to the marked improvement in surgical technique.

The maternal mortality has been very much reduced by: First, the strict aseptic technique; second, avoidance of serious hemorrhage; third, the proper suturing of abdominal and uterine walls; fourth, the deliberate performance of the operation when proper assistants can be procured, aseptic surroundings secured, the best light for operative purposes utilized, and the tissues are not mutilated by vain efforts at delivery, and infection has not occurred from frequent and careless examinations; fifth, better care of the patient after the operation has been performed.

The indications for the performance of the operation are usually classed as positive or absolute, and relative.

The positive indications are those which make the deliv-

ery of the child through the natural passages impossible even after symphysiotomy or embryotomy. This is true in greatly contracted pelves due to arrested development, rachitis, osteomalacia, or the obstruction of the normal passage by tumors developing in the pelvis or soft parts. The tumors may be carcinomata, sarcomata, fibromata, or those partaking of characteristics of more than one variety.

Symphysiotomy, which has been given more prominence within recent years, has restricted the performance of Cæsarean section to such cases only as have a conjugate diameter not exceeding two and a half inches, with a well developed child at full term.

After deciding that the indications are positive it then becomes necessary to decide whether a Cæsarean section shall be performed or a Porro operation. If the Cæsarean section is performed, we must bear in mind that we leave the patient in condition to render the same operation necessary at some future time.

The indications for the Porro operation, as given by J. C. Cameron, in the American Text Book of Obstetrics, are as follows: "First, if the uterus is infected the chances of the mother's recovery are much enhanced by the removal of the infected organ; second, if there is a partial or total obstruction of the parturient canal by tumors; third, if there is a carcinoma of the uterus, especially of the cervix; fourth, esteomalacia; fifth, if complete inertia occurs during the course of the operation."

H. J. Boldt gives as absolute indications for Porro operation the following: "First, all women who have a living child in utero at term or nearly so, and in whom the pelvic diameters are too small for the delivery of a living child per vias naturales: second, when the child in utero is dead and infection of the organ has taken place; third, in cicatricial atresia of the vagina to such an extent as to prevent delivery through the normal route; fourth, where a

neoplasm is present in the column of the uterus preventing the passage of a living child with safety to the mother; fifth, in such cases of rupture of the uterus in which an abdominal section is indicated and suture of the uterine wall is unsafe; sixth, in some cases of hemorrhage from the uterus subsequent to Cæsarean section."

These indications confine the operations of Sanger to contracted pelves, due to rachitis or arrested development, or cases with indications for the Porro operation in which the shock has been so great that the patient will not survive a prolongation of the operation.

The Relative Indications.—These are very difficult to determine, in fact, in many instances the final decision will have to be made by the patient after placing the facts clearly before her. These indications are present when the interference is sufficient to make the delivery of a living and viable child through the natural passages doubtful. A conjugate diameter from two and a half to three and an eighth inches, or when there are tumors of the soft parts producing some obstruction, causing the delivery of a living child exceedingly doubtful, this may then be undertaken after the mother has decided that she prefers to submit to this rather than to an embryotomy.

The operation, while it has now been so much improved as to occupy a well deserved place in obstetric surgery, will always be undertaken by the conscientious surgeon with a considerable degree of hesitancy.

The case operated on by me, a report of which is appended, was a patient of Dr. J. D. Cromer, who rendered most able assistance, as did Dr. S. T. Barnett, both of Atlanta.

The modern operation may be divisible into ten stages, each following the preceding in regular sequence.

First. Deliberate Performance of the Operation.—Having determined that the operation must be performed, it

then remains to decide as to the best time for its performance. Some operators wait until labor begins, believing that such a plan insures better drainage through a naturally dilated cervix, and also adds to the viability of the child on account of the uncertainty of estimating the period of gestation with accuracy. On the other hand, there are many advantages accruing in the deliberate performance of the operation which more than counterbalance the ones adduced in favor of delay. In such cases more care and attention may be given to asepsis both as regards the patient and her surroundings. More competent assistants can be had usually, for these can be procured readily and we are not forced to take whomsoever we can get, as may be the case when delay is advised.

Then good light, either natural or artificial, in a well arranged operating room may be obtained, instead of artificial light in an ordinary dwelling which we may be forced to use.

Infection is also less likely to occur on account of fewer vaginal examinations and less traumatism to the soft parts by the efforts of the contracting uterus endeavoring to force the child through the natural passages. For these reasons, the deliberate operation is the much to be preferred operation, being performed two or three days before the estimated termination of gestation.

This gives opportunity to transfer the patient to a hospital where the advantages to be mentioned under the next head are to be found, as well as comforts and conveniences of good nursing, with surroundings conducive to the best of care and attention.

In addition, no efforts have been made to deliver the child by manipulations with the hands or instruments, and the tissues are not mutilated and torn, making sepsis less likely than when such efforts have previously been made.

Second. Aseptic Surgical Technique.—When the delib-

erate operation has been determined upon, the surgical technique may be as carefully attended to as for any abdominal section. It is needless to detail the manner of preparing the patient by placing her on light diet, cleansing abdomen, sterilizing instruments, vessels, dressings, operator's and assistants' hands, etc., as they do not differ from any other abdominal operation and should be attended to with the most scrupulous care.

An important step is to carefully isolate the abdominal viscera with sterile gauze pads to prevent the entrance of amniotic fluid when uterine cavity is opened.

If the uterine cavity has been emptied and cleansed, the cervix dilated naturally or artificially, this latter being more satisfactorily accomplished before making the abdominal incision, then infection is less likely to occur from retained lochia or amniotic fluid. Dilatation should be accomplished with one of the steel dilators, and if before the operation is begun, should be dilated through the vagina, in which case the danger of liberating the amniotic fluid in abdominal cavity is reduced to a minimum, as the fluid will in all probability escape through the cervix and vagina. If, on the other hand, this is postponed until delivery has been completed, then the cervix may be dilated from above by the fingers or by steel dilators.

The vagina must be most carefully cleansed, as much care being exercised as for a vaginal hysterectomy. (It may not be amiss to describe the usual method adopted both for cleansing abdomen and vagina. The abdomen and vulva are shaved carefully the night previous to the operation, abdomen scrubbed with nail brush, using plenty of green soap and water, then using alcohol and bichloride mercury 1.1000; a sterile pad immersed in 1.1000 bichloride mercury is fastened to abdominal wall and allowed to remain until removed on operating table, the scrubbing is repeated as above, using normal salt, or sterile water to complete the

process. The vagina is given a copious douche of bichloride of mercury 1.2000, or lysol 2 per cent. the night before. When on operating table vagina is cleansed with green soap and sterile water, using gauze sponge on holder to scrub with, then follow with lysol 2 per cent. The vulva and area adjacent are cleansed as abdomen.

The hands and arms of operator and assistants are scrubbed for five minutes, using plenty of hot water and green soap with good stiff nail brush. The nails and adjacent ungual spaces carefully cleansed, the scrubbing is repeated from eight to ten minutes and* "paste of chlorinated lime and carbonate of sodium is thoroughly spread on hands and arms as high as elbows." This is rinsed off with sterile water, the hands and arms to elbows are immersed in solution bichloride mercury 1.1000 and allowed to remain three minutes and finally rinsed in sterile salt solution or sterilized water.)

After the completion of the delivery, the fragments of membrane and all large blood clots are carefully removed by sponging with sterile gauze sponges and plenty of hot salt solution. This latter serves a double purpose: it cleanses the uterine cavity and if solution is from 108 to 115 degrees F. it stimulates the uterus to more firm contraction.

Third. The Abdominal Incision.—This may be made short or long, depending upon the views of the operator. If made short then the uterus is incised in the abdominal cavity and the child is delivered through both openings. The danger of allowing the amniotic fluid to escape into the abdominal cavity, causing infection, is the strongest objection to this plan. This may be remedied by carefully walling off the abdominal viscera by use of gauze pads, but it is next to impossible to prevent some escape into abdominal cavity.

*Dr. Robt. Weir of New York.

When the long incision is made, the uterus may be delivered through the opening before making an incision into it, and after carefully isolating with sterile gauze pads, the amniotic fluid can readily be prevented from finding its way into abdominal cavity, and infection from this source is more easily prevented.

The possibilities of hernia are a little greater in the long incision, but if tissues are carefully approximated and technique is perfect, the danger from this should not be increased. In either case, the incision is made, to begin with, about six inches in length, extending from just above the umbilicus to the symphysis pubis in the median line through the skin, and superficial fascia separating the muscular tissue at linea alba until the peritoneum is reached and carefully lifting this with forceps nicking and introducing the finger as a guide to prevent wounding the abdominal viscera; the incision is enlarged as much as is necessary.

The objections to the long incision are the increased risk of hernia on account of non union or imperfect union, and the liability to hemorrhage and infection from more surface being exposed. These are, as a rule, more theoretical than real, on account of the improvement in technique and coaptation of tissues.

Fourth. Uterine Incision.—This incision is also made long or short to conform to the one made in abdominal wall. If long, then one on the anterior surface of the uterus in median line, extending from just above internal os to the fundus uteri. This expedites the delivery of child and avoids the more annoying asphyxia, if the uterus is not too tightly constricted in the effort to control hemorrhage.

The incision may be directly over attached placenta and in such case a bold incision into this does not as a rule lead to such serious hemorrhage; in fact, in my case the small amount of blood lost through this means was quite a gratify-

ing surprise. It would, however, be preferable to avoid this if possible, but when the uterus has been incised no time should be lost before accomplishing delivery.

Marcy advises making the incision as near the center of the placental attachment as can be determined, believing by so doing the uterine contraction will force the placenta more readily through the opening and with but little loss of blood and practicaly no asphyxia to child.

Fritch's incision has been highly endorsed by some; this consists in making the incision in the uterus transversely and high up near the fundus.

"The advantage claimed: easy extraction of the child; reduction of hemorrhage to a minimum as wound runs parallel to the main vessels; good control of bleeding after suture, as the stitches are passed at right angles to the main vessels; reduced risk of subsequent hernia, as the abdominal wound can be made higher up in abdomnial wall than would otherwise be possible; easy prevention of the entrance of blood and liquor amnii into abdominal cavity." My own limited experience has shown that all the advantages claimed for the transverse incision are more theoretical than practical.

Fifth. Avoidance of Serious Hemorrhage.—We must remember in making the abdominal incision that the possibilities of serious hemorrhage are very great, and each drop of blood lost unnecessarily here but adds to the aggregate loss, hence we must be very careful about our hemostasis and catch promptly every bleeding vessel before it has allowed much blood to escape; then if necessary to get out of the way the numerous hemastatic forceps we may ligate with fine catgut such vessels as will not be controlled by torsion or bruising from hemostats.

After the abdominal incision has been properly attended to, then it is wise to place a folded gauze towel or piece of rubber tubing around the lower segment of the uterus be-

fore making the incision into the uterus and entrusting this to a reliable non-excitable assistant who will constrict this if any hemorrhage results when the uterine wall is incised.

A bold, free incision is less likely to cause hemorrhage than a timid tentative one, as the child is delivered more rapidly, and the uterus is given an opportunity to contract more promptly.

After delivery of the child, if the uterus shows a disposition to contract, then no great haste need be exercised in the delivery of placenta, for by waiting a short time nature is given an opportunity either to partially or completely detach this and thereby prevent serious hemorrhage. If, on the other hand, the uterus does not seem inclined to contract promptly, it is best to forcibly detach placenta and cleanse the uterus with hot salt solution, as previously mentioned.

Sixth. Delivery of Child.—The rapid delivery through a free incision, while it makes a weaker uterine wall, is more likely to lead to the delivery of a child without serious asphyxia. With the shorter incision and the performance of version when necessary more time is consumed in the extraction of the child and more risk to the child is caused by the more profound state of asphyxia which is apt to result. The shorter incision has the advantage in that there is less danger of hemorrhage, and when convalescence ensues a more substantial union has taken place and the uterus is left in better condition for future pregnancies. If the hemorrhage is not excessive after the child has been delivered, no great haste need be exercised in the ligation of the cord, for here again we must not deprive the child of the oxygen which it needs to promote a vigor and strength at the beginning of extrauterine life. But a short time may be allowed to elapse sufficient to note the diminution in the force of impulse in the cord; when this is observed ligate and cut the cord as in normal labor and turn

child over to a capable nurse or assistant, to resuscitate if asphyxiated, or take care of until operation is completed.

Seventh. Delivery of the Placenta.—After the child has been delivered and the cord severed, then attention must be given to the placenta. If this has been extensively injured in making the incision or detached during the manipulaton of the child, then it should be hastily removed without waiting for detachment to take place naturally. If, on the other hand, there be no very free hemorrhage and the placenta has not been mutilated or cut, then it is wise to wait a few minutes for some loosening to occur and minimize risk of hemorrhage. The slightest evidence of excessive hemorrhage should lead the assistant to tighten the elastic band or towel placed around the lower segment of uterus and the hemorrhage may be controlled by this means.

Eighth. Suturing the Uterine Wall.—The earlier methods of suturing the uterine wall consisted of a single row of sutures passing through the uterine wall and peritoneum. Sanger of Leipsic recommended the double row of sutures, which is the plan adopted to-day. The first row of sutures is passed through the muscular tissue almost to the endometrium: these sutures are of kangaroo tendon, chromicized catgut or silk. My own case was sewed with sterile silk and the result was thoroughly satisfactory. The second row of sutures approximate the peritoneum and bury the deeper row. This row may be of plain silk or catgut. Absorbable sutures are much to be preferred if they are sterile beyond doubt, and with the present plans there should be no reason why this should not be the case with animal sutures. Great care must be exercised in suturing the walls to get the tissues accurately approximated and to avoid any possibility of leakage when uterus contracts after its return to abdominal cavity.

Ninth. Suturing the Abdominal Wall.—The suturing

of the abdominal wall is in no wise different from that of the abdominal incision after any celiotomy. The method here depends entirely upon the tastes of the operator. The method employed by me was the through and through, using silkworm gut. It could have been closed in layers, using fine catgut for peritoneum, chromicized catgut or kangaroo tendon for muscles and fascia, and silkworm gut or catgut subcutaneously inserted for skin and superficial fascia.

The latter yields perhaps the prettiest closure when no sepsis supervenes, but should by any chance any infection occur then the condition is very much worse than had the former method been employed.

Tenth. Dressing and After Care of Patient.—The dressings employed, like the sutures, do not differ from those used in any abdominal section, and should be held securely in place by adhesive plaster strips.

It is best to keep the patient on her back for the first twenty-four hours, and after this she may be carefully turned by her nurse on her side to relieve the almost unendurable discomfiture. She must be kept more quiet than is the case in most operations, and not allowed to twist and turn in bed until good union has been secured in both incisions. She should be kept in bed from three and a half to four weeks if there be no infection.

It is best for her not to undertake to nurse the baby until milk makes its appearance in the breasts, but the breasts should be carefully emptied by breast pump as early as the mother can endure such efforts. The baby, when nursing commences, should be treated as when normal delivery has taken place.

REPORT OF CASE.

Patient of Dr. J. D. Cromer, inmate Florence Crittendon Home, age eighteen. In childhood suffered from

rachitis which caused her to grow to womanhood greatly deformed; her legs were very short, not longer than my arms and markedly curved; her body was longer in proportion than her legs. When she stood erect she measured about four feet. The conjugate diameter of her pelvis measured about two and a half inches, the transverse diameter was also extremely short, and sacral promontory projected unusually forward, making the diameters very much less. Was seen by me on night of April 2, 1900; had been in labor all day with absolutely no engagement of head, which was presenting high up and unable to engage on account of smallness of pelvic diameters, although cervix had dilated to diameter of about three inches.

After making careful examination Dr. Cromer and I decided that a Cæsarean section was the best means of delivering her, and so placed the matter before the matron and patient, both of whom concurred in our opinion. After making preparations already described we operated by aid of lamplight at the Home, delivering a large, well developed boy, who was not asphyxiated, and mother made an almost uneventful recovery. The mother was considerably shocked at the completion of the operation, and Drs. Cromer and Barnett administered a quart of normal salt solution.

She remained at the Home for about three months, then returned to her home, carrying with her her healthy, well developed boy.

The operation performed was that of Sanger of Leipsic, with slight deviations described in preceding paragraphs.

THE LESSON LEARNED FROM THE CASE.

The thickness of the uterine wall at full term, which was observed in this case, it being about one-fourth inch in thickness. Again, the location of the placenta with refer-

ence to the uterus, which was found attached to the fundus uteri slightly more anteriorly than posteriorly.

The avoidance of serious hemorrhage even after the placental tissue was incised.

The wisdom of undertaking such an operation before serious injury to the soft parts had occurred or the possibilities of a ruptured uterus, due to violent contraction of the organ in its efforts to expel the child through an impossible passage.

The promptness and completeness of the convalescence of the mother. The absence of any asphyxia in the child and its rapid growth and development while the mother was recuperating from the effects of so serious an operation.

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DISCUSSION OF DR. DAVIS'S PAPER.

Dr. Earnest: I have nothing whatever to add, except to approve and thank the Doctor for the satisfactory manner in which he presented the subject. There was one thing which I think should be given more prominence, and that is, the previous examination of every case that a physician is called to attend, and especially if it be a primipara; for the majority of these cases where the pelvis is too narrow is unknown to the physician until he is called to deliver the woman.

Only a few cases are examined beforehand, and they should be examined three or four months previous to expected labor, and if you find an abnormal pelvis through which it is impossible to deliver a normal child, frequently the child may be delivered viable at seven or eight months,

whereas, if allowed to go to full term both mother and child may be lost. I believe that the profession should think more of this, and when called upon to attend a case, it is the duty of the physician to examine the size of the pelvic outlet before the child comes to full term.

Dr. Ross: I want to express my pleasure at hearing the paper. I have been present at only one Cæsarean section. It was a patient of Dr. Ward of Macon, and the patient began labor at six o'clock in the afternoon and at twelve o'clock he called Dr. Murray and myself to see the case, and found the head engaged with a face presentation. The patient was carried to the hospital and Cæsarean section performed. We lost the patient, but I was struck with the thickness of the uterine walls, as they were at least three quarters of an inch thick instead of one quarter of an inch.

Dr. Davis (in closing): I would state that I saw the patient first on the night of the operation, and therefore could not make an examination of the pelvic parts previously, as suggested by Dr. Earnest. I would emphasize Dr. Earnest's remarks, that every case should be examined before labor to see whether it is possible for the child to be born naturally.

LUNG INJURIES.

D. A. N. THOMAS, M.D., Jersey, Ga.

On the evening of September 4th, 1899, a young man named Mark Riley, age 21 years, who was guarding convicts for Walton County, Ga., was accidentally shot with a 44 calibre, 8 in. barrel, extra heavy Smith & Wesson revolver. The accident occured near one half mile from my office, and he was brought to my office at once, where I examined him and found that the ball had gone through his body, seriously injuring his right lung.

I made no measurements at that time, but, approximately speaking, the ball entered about 1 1-2 inches to the right of, and about 1 1-2 inches below the right nipple. I did measure the point of exit by placing the center of the end of my middle finger on the center of the spinous process of the vertebra just opposite the hole, and the side of my finger was in the edge of the hole, that being 1-4 of an inch to the right of spinal column.

On the third day of the present month I went to the young man and measured the present locations of the cicatrix of entrance and exit.

The cicatrix of entrance of the ball was found to be in the seventh intercostal space, 3 inches to the right of, and 2 1-2 inches below, the right nipple. The cicatrix of exit was found to be in the fifth intercostal space, one inch to the right of the spinal column, and measures 10 inches between the cicatrix of entrance and the cicatrix of exit.

The fact that the young man is 19 months older now

than at the time of the accident, is much fleshier and better devoloped, I think accounts for the difference in measurements.

THE SHOCK.

The shock was extremely great, when I first saw him some ten or fifteen minutes after the accident. He was in a semi-conscious condition. So I dressed his wounds and had him drink some sweet milk and whiskey, then had him placed on a cot and carried to my residence about 30 yards distant. I gave him my personal attention until reaction was established, that being about 3 o'clock the next morning. By that time he could talk in a whisper distinctly enough for me to understand him.

He wanted to be changed from the cot to a bed in the same room, and I accordingly had him moved to the bed. He was almost lifelessly quiet up to that time, though I had managed to get him to take a small quantity of milk and whisky at irregular intervals. I had dressed his wounds three times during the night, with thick pieces of aseptic absorbent cotton, at all times avoiding any plugging, packing, or in any way obstructing the flow of blood from the wound in the back. I kept him on his back, slightly inclined to his right side, so as to allow as little blood as possible to coagulate and remain in the lung and pleura, where the blood would decompose and cause septic and many other systemic disturbances that would have, more than likely, proved a fatal termination. The hemorrhage was very profuse: so much so, that the young man's brother made complaint to me.

SYMPTOMS.

The patient vomited coagulated blood copiously some three or more times during the first night. Hemoptysis was very profuse for 14 days, and continued (though

gradually improving) for about 21 days longer; in all about 35 days. There was also a very great, but of course an unknown quantity, of blood passed through the bowels of the patient during the first week after the accident.

Dyspnea was one of the most distressing of all symptoms from the first, and the greatest relief of the dyspnea, and the most comfort to the patient, was produced by the constant use of a palmetto fan day and night for two weeks. The constant current of fresh cool air kept the dyspnea in a measure relieved. The weather being hot and sultry, the current of air also helped to keep the patient cool and comfortable, thereby keeping him quiet and allowing the lacerated lung to heal.

The patient complained of a severe soreness in the epigastric region from the time he gained consciousness. That required paliation by use of liniments. The young man informed me on the 3rd of this month that he still feels a slight soreness in the epigastric region at about the same place it was soon after the accident.

The circulation was fairly good and held up well by the judicious use of stimulants. The pain was less than I naturally expected, knowing the gravity of the case. The temperature was slightly elevated during the first 10 or 15 days. The patient had little desire to take nourishment, and only did so when I required that he should.

DIET.

The diet consisted almost exclusively of milk shake, hardly ice cold. I had the patient to take two or three ounces of the milk shake freshly made, at entervals of about three hours when awake, never allowing the patient disturbed for anything when asleep.

REASONING.

Now, gentlemen, in view of the above stated facts, that man's lung was lacerated by a 44 calibre pistol ball, from front to back, in an upward and backward direction, beyond reasonable doubt, thereby lacerating more lung tissue than would have been had the ball gone through the lung at a right angle to the body. Conclusive proof that the ball did go through the lung is the fact that the ball entered through an intercostal space and passed out through an intercostal space, making it impossible for the ball to glance, follow a rib, or in any plausible way miss the lung. Then permit me to say as an unquestioned fact, that a lacerated lung will bleed more profusely than any vital organ of the body except the heart. Therefore, this being an extensive injury to the lung, hemorrhage was naturally great. Then I contend in the name of common sense, don't stop the hole on the outside and believe that it will stop the hemorrhage from a gun shot injury to the lung, on the inside. If the external opening should be packed with gauze, absorbent cotton, or in any way plugged up, the blood would cease to be seen, but the hemorrhage from the lacerated lung would continue uninterrupted, and the patient would likely succumb to suffocation from the retained and coagulated blood in the lungs. If the patient should be fortunate enough to escape immediate death from suffocation and the loss of blood, he would most likely succumb to some of the many septic infections caused by the decomposing blood. Some one might ask if the patient was not liable to a fatal hemorrhage. Certainly he was; but stopping the hole on the outside would not stop the hemorrhage from the lacerated lung on the inside. Then the patient would have been subject, not only to the fatal hemorrhage, but also to the long chain of grave constitutional diseases likely to be

caused by the blood decomposing—not having been allowed to escape. Whereas if the blood had been allowed to escape, these constitutional diseases would quite likely have been prevented. Therefore I let the blood escape and obtained good results.

I contend further that a depleted system from the immediate loss of blood will absorb coagulated blood, or anything else retained in the system that can or should be absorbed, much more readily than would a plethoric system under similar conditions. Then we are forced to the conclusion that there was more or less parenchymotous infraction of blood in the lacerated lung and pleura. But the system being depleted from the immediate loss of blood, and the patient young and in perfectly healthy condition, that the internal hemorrhage was so quickly and so thoroughly absorbed that the constitutional disturbances were most agreeably and, I must confess, unexpectedly light.

TREATMENT.

I used a dry dressing of iodoform, bichloride gauze, and thick dressings of aseptic absorbent cotton to enhance free drainage, and after the first day I only dressed the wounds every second day. The wound, both external and internal, healed as if by magic.

I used as an antiphlogistic and antipyretic, 2 gr. aa quinine, acetanilid, and pulv. ipecacuanhæ et opii in capsules, one every 2 to 4 hours as required. Minor symptoms were controlled by the appropriate treatment. Rest and seclusion were important factors in the treatment.

Patient rode in a single buggy to his home, a distance of 5 miles, on the 25th day after he was shot. The ride was uneventful and did not cause any unfavorable symptoms.

When I saw the young man on the third of this month, he was again taking the hardship and exposure of guarding convicts, and he told me that his health was never bet-

ter, and also that the gun shot injury never gave him any trouble.

Thomas Bryant, F.R.C.S., of London, says, in "Gun Shot Wounds of the Chest": "In the American war the mortality was 73 per cent.

"Penetrating gun-shot wounds are generally fatal, scarcely more than one in ten surviving. While death generally results directly from hemorrhage or from the consequences of secondary inflammation of the thoracic organs, internal bleeding is the chief cause of death, but the surgeon has no means at his disposal to make out the exact source of the hemorrhage.

"When the lung is injured, as indicated by emphysema or hemoptysis, pneumonia, which happens in about 7 out of every 22 cases, is the danger to be feared."

ANOTHER CASE.

I have another case of peculiar interest to the medical profession in this day of "bugism." The facts in this case seem almost incredible, and yet I have made a close and searching inquiry into the matter on account of its peculiar interest, and also on account of its apparent incredibility and impossibility.

Now, gentlemen, ours is a progressive science, and we are in search of more light in medicine, and knowledge of the behavior of the animal organization under different conditions.

The lungs are the most exposed to the vicisitudes of the weather, the inhalations of poisonous effluvias and all manner of disease germs, especially the tubercular bacillus, and the sudden and unexpected afflux of foreign bodies into the lungs, especially among children.

This case is one where a child about four years old unexpectedly sucked a piece of cedar into the lung. The facts are as follows:

On the morning of August 15, 1898, I was called in haste to Mrs. Emma A., who lived about three miles from my office, and when I entered the house the woman was well nigh exhausted from a hemorrhage so great that she could not talk. After remaining with her for some hours and getting the hemorrhage controlled, there was presented to me a piece of cedar, having an exceedingly offensive odor. The woman informed me that a clot of blood came into her mouth having something rough in it. The hemorrhage was so violent at that time that she was unable to speak, and so laid the clot aside. This piece of cedar was the rough matter contained in the clot. I questioned the woman closely as to when she had, if at any time, put a piece of cedar into her mouth. She said that when a small child she sucked a piece of cedar into her windpipe, was carried to a physician who failed to remove it; that she had had a violent cough ever since that time, but had forgotten about the cedar and thought she had consumption, as she had suffered occasional hemorrhages, especially after exertion, for a number of years. From the best information I could obtain she was about four years old at the time the piece of cedar was sucked into her windpipe. She was 39 at the time it was expelled; making a period of 35 years since engagement of the cedar in her lung, with no proof of its ever having been taken out. The woman is positive that she never got but the one piece of cedar in her windpipe. The old adage "That a burnt childs dreads fire," would apply here, as the child grew up never wanting to put any more cedar in her mouth. I may add also that the woman's husband informed me that the doctor who failed to extract the piece of cedar dunned him for the bill since his marriage for services rendered his wife when she was a child.

The woman has had no more hemorrhages since the re-

moval of the cedar, and is practically free from cough except when caused from influenza or other bronchial irritations common to other people. She is now stout, well and hardy, has gained much in flesh, and has given up the belief of having consumption.

The twig of cedar having very little wood fibre, and being very nearly all bark of a comparatively soft nature, of course would decay much more readily than would a foreign body of a more solid sort, though this piece of cedar was comparatively well preserved when expelled. Having been always kept moist in the lung, it had decayed but little. But as soon as it was expelled and became dry it also became very brittle; though a small dry twig of cedar is naturally very brittle.

When the piece of cedar was given to me it was one inch long, 1-4 of an inch wide near half its length, and 1-8 of an inch wide the remainder of its length. It had three or more prongs 1-4 of an inch long and 1-8 of an inch wide. All the cedar was in one piece when presented to me, but has crumbled into many pieces since becoming thoroughly dry. The party who gave me the piece of cedar said that some of the prongs and possibly part of the length had been broken off when getting it out of the clot of blood in which it was expelled.

A piece of cedar is probably one of the most dangerous foreign bodies that a child is liable to get into the lung, for the reason that, having entered the lung, it has so many small sharp points on its surface that it becomes fixed, as it were, into the very tissue, and no degree or amount of coughing will expel it. Besides, the cedar being so externally rough it will cause no small amount of irritation, and will eventually cause a breaking down of the lung tissue before it can become disentangled from the delicate structure of the lung. This piece of cedar, very likely,

would not have been expelled when it was had it not become encased in a blood-clot, thereby covering its sharp and pointed roughness, and in that way preventing it from hanging again and becoming entangled, as possibly it may have done many times before, in some of the many previous hemorrhages.

Now, gentlemen, the question arises in my mind: Why did this woman never acquire tuberculosis pulmonallis? I think the most reasonable conclusion is this: The woman having always lived far out in rural districts, and having always labored to a great extent in the out-door air, even making a field hand when necessary, and that becoming necessary every spring and summer, caused her to breathe an abundance of fresh pure air not contaminated with the tubercular bacillus, as would have been had she lived in a more densely populated district. Then again the out door labor helped greatly to keep her general system in a healthy condition, and causing an extra amount of pure fresh air in the lungs, keeping them in a well developed and healthy state, which could not have been true had she lived always indoors or in a more densely populated community.

Again, this woman has always subsisted mainly on a coarse diet, and being an out-door worker, digestion has been good and assimilation perfect, thereby keeping the system properly nourished; which is to life as the keystone to a great arch, and is a most powerful prophylactic to disease.

I called to see the woman on the 10th of this month and found her condition to be perfectly healthy. She is comparatively fleshy, has a good color, says that she feels well and is able to do any form of labor that she desires to do. Before the cedar was expelled she said that she felt weak, and was at all times in great dread, as any violent

exertion caused a hemorrhage more or less severe, and then she was anemic and lean. The cough is at this time of no consequence, only troubling her when she has influenza or other bronchial irritation that would cause a cough in any one else who had never acquired lung injuries. She is now no more subject to bronchial troubles than any one else; has never had another hemorrhage, and it is now near three years since the cedar was expelled. In addition to this she says that she has been troubled less with colds during the past winter than at any time since she can remember. There is a long list of acquired lung injuries with which you are all familiar and which are unnecessary for me to mention in this connection.

IN CONCLUSION.

Now, gentlemen, a few words to the legislative committee: I would like to have a bill enacted into state law requiring every consumptive to carry a nice clean vessel with a close fitting top with them at all times in which to expectorate, and as often as once a day, or oftener if the expectoration be profuse, to thoroughly destroy by boiling or the use of chemicals the sputa, and by all means to cleanse and disinfect the vessel. This would be no great trouble to any one, and in my honest opinion would strike at the very foundation of the most prevalent cause of infection of that dread disease, tuberculosis. In my opinion not less than 95 per cent. of all cases of tuberculosis are inoculated with the tubercular bacillus thrown from the lungs of some one who is suffering from the tuberculosis. Consumptives do not scatter these germs broadcast through ill will to any one but merely through lack of knowledge of the danger they cause to the useful lives around them, by scattering disease germs which might have been destroyed.

Tuberculosis being practically incurable, and at all times claiming new victims and holding fast to the old ones, it behooves us as members of the healing art who have and are expected to have the good of humanity at heart, to do something to protect the people from the infection, so far as we possibly can, of this, the most of all diseases to be dreaded,—tuberculosis pulmonallis.

THE ADVANTAGES OF THE X-RAY IN THE TREATMENT AS WELL AS THE DIAGNOSIS OF CERTAIN SURGICAL CASES.

DR. M. F. CARSON, Griffin, Ga.

One of the most interesting features of medicine and surgery in this, the beginning of the new century, is the increasing interest in X-ray work, which is perhaps accounted for by a large number of our physicians and surgeons, remaining indifferent for so long to this important subject, beginning to appreciate its importance.

No surgeon who once having witnessed a high efficiency X-ray demonstration can fail to desire so valuable a recourse. Observations upon fractures and dislocations by the aid of the X-ray has convinced eminent authorities of the necessity of many changes in our text-books, based upon the revelations of the ray.

In the examination of soft parts much valuable information has been gained. In presenting this paper I do not claim anything new or original, but desire to emphasize the importance of this valuable assistant in the diagnosis and treatment of certain surgical diseases. I desire to present the following cases for the purpose of demonstrating that in the X-ray we possess an accurate agent for diagnosing tubercular changes of lung tissue in its various stages. My first case, male, age twenty-four, for several weeks had been losing flesh, accompanied by severe cough. Examination showed dullness of the upper lobe of the right lung with crepitant and subcrepitant rales.

This patient expectorated freely very foul sputa which under the microscope showed pus in abundance. X-ray examination showed a distinct circumscribed area as large as an orange. Before a large tube glowing at its maximum of intensity, I introduced a long needle attached to an ordinary syringe guided by the X-ray, and withdrew considerable pus. Remembering Dr. Seneca D. Powell's address before the Southern Surgical Association last year on how he used pure carbolic acid in abscesses, I resolved to try it in this case. I injected into the center of this dark area sixty minims of pure carbolic acid, followed in five minutes with double the quantity of pure alcohol. This operation I repeated every day for five days, withdrawing considerable pus each time. On the thirtieth day I examined this patient before the fluoroscope to find this lung perfectly clear. I placed this patient on iron and cod liver oil. His cough has subsided and he has gained steadily. I have frequently examined this patient with the ray to find this once dark area perfectly clear. Physical signs show to-day a distinct cavity.

This you may consider heroic treatment. But I believe that by the injection of carbolic acid I produced a cavity and at least arrested the progress of a tubercular abscess. I consider it just as safe to inject pure carbolic acid into a tubercular lung as in a tubercular abscess elsewhere, especially when we can regulate the degree of its effect by the use of alcohol.

I have frequently demonstrated the dark shadows in the incipient stage of tuberculosis, where the physical signs were negative.

While much has been written and claimed for the X-ray lately as a therapeutic agent in the treatement of tubercular disease of the lungs, skin and elsewhere, after a thorough test in both cases I am prepared to say that I do not believe the ray possesses any therapeutic properties,

and that the alleged actions on germ diseases are only the result of the electrical current and other natural causes. I believe that any action that may reside in the ray is at our command in the well established currents of electricity.

Case No. 2.

Patient came into my office with a fracture of the humerus. The diagnosis was simple. I set these bones, applied splints, then examined with the ray to see if I had secured the bones in proper position. To my surprise I found the bones overlapping at least one and one-half inches. With the assistance of two negro men I made steady traction for several minutes, tightened my bandages, with the satisfaction that the bones were in good position. I have frequently examined this arm to find an absence of the usually large callus always found in fractures that were improperly set. I have set three fractures by this method; have examined them afterward and found no callus or enlargement at point of fracture. I have examined five fractures set by the usual method. In every case I found a large callus, which always interferes with the functions of the surrounding soft parts. In two cases of fractures of the tibia I found the bones overlapped at least one and one-half inches, in two cases of fracture of the humerus, I found the same condition, and in both cases a very large callus. I am satisfied that many cases of supposed injury to the nerves which develop late is the result of the pressue of a large callus so essential to union in overlapped bones. The value of the X-ray in office work is conspicuous in the detection of both fractures and dislocation, in the demonstration of integrity wherein fractures and dislocation do not exist, in the detection and localization of foreign bodies, in the diagnosis of growth composed wholly or in part of bone.

In recent fractures the exact position of the fragments before and after reduction can be made out. With the aid of an assistant a faulty adjustment may be rectified at once, displacements of the fragments may be discovered long before the time for reapplication of splints.

In old fractures the information to be gained by the X-ray is invaluable. Only in this way can we determine the position of the fragments and the point of impingment, and the cause of impaired function. There are many cases in which the fluoroscope gives vastly more important information than the photograph, because one sees in succession the parts from every point of view. Dislocations, old or new, can never be overlooked in fluoroscopy. In minuted fractures the situation of the bone is detected with ease. I recall one instance when the physician blamed himself and the patient—the physician for non-union of the humerus when a fluoroscopic examination showed the bones in correct position. Other not infrequent uses of the rays in general surgical work are the demonstration of bone diseases, exostoses, tumors, loss of substance, irregularities in contour cases, variations in size.

In one instance of an osteosarcoma, I detected the growth in its early stage. In tumors of bony origin, deduction based upon density are easily made.

Irregularities in outline from erosions, necrosis, bony deposits and all forms of bone disease attended by change of form, widen still further the scope of X-ray usefulness.

The following cases will serve to illustrate the advantage of the ray in examining soft parts for foreign bodies:

Case 1. Boy, age ten years, while out playing received from a parlor rifle a bullet wound of the belly. A physican was called in and diagnosed a serious condition, and explained to his parents what had propably happened

to the intestines, as the bullet passed through the abdominal cavity. A consultation was suggested and another surgeon called in, and made the usual prognosis that if the little fellow lived three days he had a fighting chance. A few months later I examined this case before the ray, and found the ball safely resting in the muscles of the abdominal walls. It had passed obliquely about two inches from point of entrance.

Case 4.—Young lady, age thirty, with discharging sinus to the left and on a level of the second lumbar vertebra. Three years ago this case was operated on by Dr. Willis Westmoreland for stone in kidneys. He cut for the left kidney, but failed to find it. He then traced the sinus across in front of the spine to the opposite side. A few weeks later I examined this case before the X-ray and found a large horseshoe-shaped kidney on right side with a small stone in its substance, with no shadow of a kidney on the left. This case, interesting from its very rarity and in that this patient had taken ether three different times for forty minutes each, with only one kidney, and it diseased.

Case No. 6.—Young man received a bullet wound of the thigh, which entered on the lower outer side, struck the femur, glanced upward and inward and came within two inches of the surface on the inner side. The wound was never probed, but continued to ache and throb. On the tenth day I examined with the X-ray, located the bullet twelve inches and on the opposite side from point of entrance. I placed patient on table and with cocaine made an incision a little wider than the width of my scalpel and removed the ball. In a short time the wound healed.

Two weeks later patient came into my office complaining of a throbbing pain which seemed deeply seated, with slight elevation of temperature. I examined him with the ray and found a small spicula of detached bone, with a

rough, uneven surface immediately surrounding it; guided by the X-ray I introduced the needle and withdrew considerable pus. Through this needle I injected one-half ounce carbolic acid, withdrew my needle. All symptoms subsided and I have frequently examined this patient to find no evidence of bone disease other than elevation of the united spicula.

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THE ALUM ENEMA IN THE AFTER-TREATMENT OF ABDOMINAL OPERATIONS.

VIRGIL O. HARDON, M.D., Atlanta, Ga.

The improvements introduced into the technique of abdominal work during the past few years have largely eliminated the dangers which formerly characterized that department of surgery. Rigid antisepsis and thorough toilet of the peritoneum have materially diminished the mortality from septicemia, complete operation and new methods of hemostasis have reduced the danger of hemorrhage, while rapid operating and saline infusions have made fatal shock almost a thing of the past.

But there is one complication in abdominal surgery which has not kept pace with the general improvement and which claims nearly as large a percentage of victims to-day as it did ten or fifteen years ago. I refer to intestinal paresis. Every one who has done any considerable amount of abdominal work is familiar with this much-dreaded complication, and knows how great a fatality characterizes it. It follows the simplest as well as the gravest operations, and when once it has become established the prognosis under accepted methods of treatment is in the highest degree unfavorable.

The best authorities are agreed that intestinal paresis following abdominal section is due to exudative peritonitis. It is not easy to believe that such is the case in view of the fact, upon which all operators are also agreed, that free movement of the bowels causes the symptoms to disappear in a few hours, and that when this is accom-

plished the patient goes on to a rapid recovery. Yet the reports of autopsies made after death from this cause compel an acceptance of that view.

Dudley has given a graphic description of the clinical history of such cases. He says: "Every abdominal surgeon is painfully familiar with the characteristic symptoms. He has descried them from afar as one may discern the black cloud near the horizon. In the balance between hope and fear he has watched the anxious face, the drawn expression, the progressively rising temperature, the nausea, at first attributed to the anesthesia, then, as this subsides, the vomiting of sepsis which takes its place, the frequent regurgitation of bile mixed with blood and mucus, and growing darker and darker. He has recognized the gradual failure of the pulse, first weak, then running, then thready to the vanishing point; the paretic and distended bowels, which refuse to act; the rapid respirations, the cold extremities, the staring eyes, the wide nostrils, and finally the inevitable collapse." "Treatment," he adds, "is utterly useless. . . . The first effort should be directed to the movement of the bowels." With reference to the same condition Penrose says: "If these symptoms are not arrested by the use of purgatives, turpentine enemata and the rectal tube, it is probable that the result will be fatal."

Similar quotations could be given from many other writers on the subject, and the lurid picture thus drawn confirms the experience of every operator, that the condition is one of the greatest gravity and one which calls for prompt and energetic treatment. All remedial measures which do not include thorough movement of the bowels are absolutely futile, and if this end be accomplished no other remedy is needed. The re-establishment of intestinal peristalsis is therefore the essence of treatment. It is not necessary that there should be a copious

discharge of fecal matter. If peristaltic action be induced to the extent of causing expulsion of the gas by which the bowels are distended, the desired result will be accomplished and fecal discharges will follow later. This fact renders it highly probable that distention of the bowel by gas is a cause as well as an effect of the paralysis of muscular action in the intestinal walls.

Epsom salts has been found to be the best internal remedy for exciting peristalsis under these circumstances. But unfortunately, in the great majority of instances, vomiting is so prominent a symptom that this remedy is not available. The stomach rejects it as soon as it is taken. It is also true that the vomiting is most persistent and uncontrollable in just those cases in which catharsis is most urgently called for. What is true of salts in this respect is equally true of all other internal medication, so that the stomach can not be utilized as an avenue through which to attack the disease. Catharsis by hypodermatic medication has been often attempted, but has always proven a failure. The rectum alone remains as a channel through which remedies can be introduced into the system. The ordinary enemata of soap and water, oxgall, turpentine and other substances are sometimes effectual at the beginning of the abdominal distention; but after the symptoms have become well-pronounced, these remedies usually fail to have any effect and are frequently retained, thus adding to the distention already present. The rectal tube carried above the sigmoid flexure, even to the ascending colon, will sometimes allow the passage of a portion of the gas. But the absence of contractile power in the muscular walls of the bowels and the presence of gas in the small as well as in the large intestine often render this procedure useless. Attempts to draw off the gas by aspiration through the abdominal walls have proven futile, and at the present day

are mentioned only to be condemned. When all these measures fail, as they will fail in a large percentage of cases, the patient goes from bad to worse, and death soon closes the mournful scene. These facts, which are patent to all abdominal surgeons, furnish my reason for offering to the profession for such cases a plan of treatment which has proven so satisfactory in my hands that it has entirely superseded all others. I refer to the alum enema.

Almost exactly nine years ago, on the twenty-first of April, 1892, I operated on a patient for pyosalpinx, removing the appendages on both sides. The operation presented no unusual complications There followed the ordinary ether nausea, but instead of subsiding in a few hours as it commonly does, it continued through the next day. At the end of twenty-four hours there was evident distention of the bowels by gas. The temperature, which up to that time had remained below 100, rose to 102. The pulse ran up to 130 and began to be thready in character. I recognized the necessity for prompt action and prescribed Epsom salts, which was not retained. Calomel in half-grain doses every hour was also rejected by the stomach. Enemata of soap and water, castor oil, glycerine, turpentine and ox-gall were successively used, but without avail. A rectal tube was passed high up into the colon, but no gas escaped through it. At the end of the second twenty-four hours the patient's condition was alarming, and from my previous experience with intestinal paresis I felt that the case was practically hopeless. In casting about in my mind for some means of relief, it occurred to me that by analogy with the violent gastric peristalsis effected by alum when taken into the stomach, a similar effect might follow its injection into the bowel. I therefore directed the nurse to prepare a solution of an ounce of powdered alum in a quart of warm water and to inject it into the rectum while I sat by and

awaited the result. In about ten minutes I was rewarded by hearing the sound, so grateful to the ears of the abdominal surgeon, of flatus escaping from the rectum. A large volume of gas was expelled and the patient was correspondingly relieved. In an hour the enema was repeated with a similar result. From that time on the gas was expelled at intervals spontaneously, the pulse increased in strength and diminished in frequency, the temperature fell rapidly until it was below 100. The patient was practically convalescent on the following day, made a rapid recovery and left her bed at the end of two weeks.

Since that time I have used the alum enema in hundreds of cases and always with equally good results. I have not varied from the formula which I used in the first instance, but one of my assistants, on one occasion, misunderstanding my directions, used an enema of one half that strength with apparently as good results But as no bad effects follow the use of the stronger solution, I still use an ounce of powdered alum to a quart of warm water, which is approximately a three per cent. solution. It usually causes expulsion of gas in from five to fifteen minutes, but in some cases a longer time is required. Sometimes it is necessary to repeat the injection before it will act. This can be done with perfect safety an indefinite number of times. There may be re-accumulation of gas after the first enema has done its work. If so the injection may be repeated as often as the gas accumulates. There is sometimes some pain attending its use, but it is not severe. It is not necessary that the solution should be carried high up in the colon. I inject it in the same manner that I would an ordinary enema, and probably in no instance does it go above the sigmoid flexure. But peristalsis is induced throughout the whole intestinal tract, including the small as well as the large intestine. In a certain proportion of cases in

which the alum enema has been repeated several times, there is thrown off from the bowel a tubular cast. The first time that this occurred I was much alarmed, as I feared that it was due to sloughing of the mucous coat of the intestine. But a microscopic examination made by Dr. W. H. Moncrief, house surgeon of St. Joseph's Infirmary, showed that the cast was composed simply of mucus whose albuminous elements had been coagulated by the alum. I have therefore come to regard this phenomenon as of no importance. As to the manner in which the alum enema acts in producing movement of the bowels, I have no theory to offer. That it does not act mechanically by its bulk is shown by the fact that in cases in which a similar quantity of water or of any other fluid has been injected without any result, the alum solution is effectual. It seems to have as specific an action in inducing intestinal peristalsis as has castor oil when taken into the stomach. In only a small proportion of cases is the peristalsis sufficiently violent to produce griping pains. It does not cause a serous exudation from the intestinal walls as does Epsom salts, and therefore produces less depletion of the abdominal blood vessels. For that reason I prefer to use Epsom salts when the stomach will retain it.

The advantage which I claim for the alum enema consists in the promptness and certainty of its action in a class of cases in which all other remedies frequently fail, and in which such failure involves the death of the patient. It is therefore a life-saving measure, and as such I feel it my duty to offer it to the profession.

It has fallen to my lot to do abdominal work for the last sixteen years. During the first seven years in which I did not use the alum enema, 42 per cent. of my deaths were due to, or at least accompanied by, intestinal paresis. During the last nine years in which I have used the

alum enema, I have not had a single death from that cause. I have seen only one patient in whom the alum enema failed to move the bowels promptly. In that case the enema was used every two hours during the third day without any apparent effect, and it was therefore discontinued. But the bowels acted spontaneously on the fourth day and the patient recovered. This may have been a case where the action of the alum was delayed for a longer period than usual. During the nine years in which I have used the alum enema my percentage of mortality in abdominal work has been a little less than one half of what is was during the previous seven years. A portion of this decrease is doubtless due to improved methods of operating which have been introduced during that time. Another portion is doubtless due to the greater skill which comes to every man as his experience increases. But there still remains a wide margin which, in my judgment, may be reasonably attributed to the effect of the alum enema in eliminating intestinal paresis as a cause of death.

The use of the alum enema has not been confined to my own practice. Other surgeons who have seen its beneficial effects in my hands have adopted it with equally good results. It is now in common use in the Grady Hospital, St. Joseph's Infirmary and other institutions in Atlanta. Nor is its usefulness limited to abdominal surgery. I often employ it after minor operations in patients who can not retain a cathartic taken into the stomach, or when cathartics, though retained, fail to act. A number of the general practitioners of my own city have informed me that they have also used it in non-surgical cases, especially typhoid fever, with great satisfaction. It has, therefore, a wide range of usefulness and it appears to me to constitute a valuable addition to the therapeutic resources of the profession.

DISCUSSION OF DR. HARDON'S PAPER.

Dr. J. B. Morgan: I have listened to this paper with rare pleasure, not entirely for the splendid way in which he delivered it and the happy expressions used in giving the points contained in the paper, but from the gist of it and the very germ in it. I think the use of the alum enema in paresis is one of the greatest advances we have had in five or ten years in medicine in the treatment of these troubles. We employ it a great deal here in Augusta. I use it when all others have failed. The first I remember about it was an article Dr. Hardon read before I was a member of the Association. I have never known it to fail, except in one case, and that was a gunshot wound and there was complete paralysis and it did not act. I have gone with instruments ready to operate on a patient here in this city too ill to be carried to the hospital, and when I got there I asked them if they had used Dr. Hardon's alum enema, and they had never heard of it. We tried it as directed, and I did not take the instruments out of the satchel, as the patient was relieved. It was a case of Dr. Holliday's, and since then I have always used it with complete satisfaction.

Dr. McRae: I wish to add my testimony in favor of the alum enema, as I have used it for several years. I began using it soon after Dr. Hardon first announced it and have had the same experience with it as he. When I was operated upon in New York for appendicitis I suffered considerably from gaseous distention, and I asked them if they had ever tried the alum enema, and they had never heard of it there. I suggested to the nurse that she use it after getting the consent of Dr. Bull, and I was immediately relieved. They told me recently in New York at Dr. Bull's hospital that they had been using it since then. I have never known any one to use it without being delighted.

Dr. Earnest: As one of the beneficiaries of Dr. Hardon's discovery, I wish to indorse what he says. I have been using it at the Grady Hospital and in my private work after operations, and I am accustomed to order the nurse to give an alum *e*nema, and if the patient does not get relief after two hours I instruct her to give an alum e*ne*ma. (Laughter.)

The President: I would like to ask Dr. Earnest which one gives the best results?

Dr. Earnest: Whichever one is used first generally does the work.

Dr. Hardon (in closing): I have nothing to say, except to thank the gentlemen for indorsing what I had to say in my paper.

THE TREATMENT OF EXTERNAL CANCER WITH CAUSTIC POTASH.

M. B. HUTCHINS, M.D., Atlanta, Ga.

In other papers I have referred to the use of this chemical in the treatment of skin cancer. Quite a large further experience with it has but confirmed my opinion of its value. My reason for using the words "external cancer" in the title is that I have employed the caustic potash in other than simple epitheliomatous cases. I do not believe there is a "cure-all" for cancer and have never been willing to accept any one method of treatment as the only one.

The treatment of cancer with success depends simply upon our ability to remove or destroy all the disease, as I have always maintained. The more conveniently and agreeably this can be done, and the better-looking scar we get, the more satisfactory is our treatment to the patient.

Caustic potash is the "hydrate or hydroxide of potash," and is a powerful alkali. The molded stick deliquesces from the absorption of moisture when exposed to the air. Vegetable acids constitute its surest antagonist. The National Dispensatory, from which I get a description of the chemical, says: "It destroys animal tissue by abstracting water, neutralizing free acids, decomposing nitrogenous compounds and forming solutions of fibrin, albumen and gelatin."

It acts more rapidly upon epithelial structures than on the more vital tissues and hence more destructively

upon the cells of cancer than upon normal structures. The addition of moisture is essential to its action upon very dry epithelial growth. It cuts the blood-vessels and is able to stop the resultant bleeding only through the mechanical plugging afforded by the gelatinous destroyed mass. It does not contract the vessels or coagulate fibrin, if any fail to yield to its destructive action. In my efforts immediately to remove the soft mass of destroyed tissue from a lady's face, I brought on bleeding which persisted with intervals for two hours. The blood was of low coagulability. When it becomes necessary to neutralize the caustic potash I use acetic acid. It is also used around the diseased area to protect healthy structures. In using the caustic in the corner of the eye, even between the eyeball and the inner wall of the orbit, I have always been able to prevent injury to the eye by the timely use of acetic acid.

The use of arsenic to destroy cancerous growths is very old. It is corrosive and has been credited with special selective action on the disease. Its usual method of application by reputable practitioners is in the form of Marsden's paste, the average formula of which is equal parts of arsenious acid and powdered gum acacia made into a paste with water. It must remain in contact with the disease for from ten to twenty-four hours, and is painful all during that time. On a large surface there is danger of absorption, and it is also unsafe near the eye or mouth. Having these unpleasant features, and not having given me any better, if as good, results as caustic potash, I have given it up.

Chloride of zinc is very painful, a coagulant and makes a tough, dry eschar. It acts like the acid caustics and has no affinity for epithelial growths. I have never used it.

Acid caustics coagulate the tissues and the blood, constricting the vessels. The pain is intense with some of

them, the eschar tough, and the scar likely to be contracted, hard and ridged. Sulphuric acts like the cautery. The actual or electro-cautery I no longer find indications to use. The glowing metal does not reassure the patient, and the effect does not justify its use so long as caustic potash can be had.

Other caustics need not be mentioned, as they have no special claim to be used.

When applied to the average brittle epithelioma, in which there is not much fibrous tissue, or to a lesion which is succulent, caustic potash rapidly changes it to a black, jelly-like substance. The fibrous tissue in and around the lesion is necrosed, becoming grayish but not so soft as the less stable substances. The destruction is almost instantaneous, if sufficient moisture be present.

The pain is severe, but begins to subside in one or two minutes, as a rule, being entirely gone by the end of five minutes. Of course there are exceptional cases in which the time varies. Once having ceased the pain never recurs, while nitric acid, or the acid nitrate of mercury, for example, sometimes produces persistent or paroxysmal pain which may last several hours. Even nitrate of silver may cause a stinging sensation lasting half an hour or more.

The injection in and around the tissues of a 1 per cent. to 2 per cent. solution of cocain, or the application, during several minutes, of a 10 per cent solution to a raw surface, unfortunately exercises but little anesthetic effect against caustic potash. A saturated solution of eucain B. does somewhat better. Most of my cases having been of the face or head, I have been afraid to use much cocain, not caring to have a death under any anesthetic or operation. In cases where the application of the caustic has to be prolonged or extensive I employ general anesthesia.

If the lesion to be treated is small and any part of the

surface is broken, I usually employ the deliquesced caustic potash on a toothpick or probe having cotton twisted on the end, boring in as depely as necessary. The "deliqueseed" is obtained by putting the stick caustic in a bottle, stopping it up only with cotton, which permits the entrance of sufficient moisture from the air gradually to liquefy the stick to the consistence of mucilage.

The deliqueseed form is used in most cases because it is more easily kept in bounds. If the stick is used one must watch carefully to prevent overflow from its rapid liquefaction, which might cause serious damage to adjacent structures.

If I have an unbroken surface lesion of some extent, I usually break in or curette away the redundant tissue before using the caustic. If the lesion is large and in a region where the action of the caustic must be very deep and extensive, I use the stick caustic potash, wrapping all but the end to be used in tinfoil to protect the fingers. The stick is thoroughly bored in, rapidly dissolving as it unites with the substances attacked. The surrounding tissues are protected with acetic acid.

Where I have to treat a subcutaneous cancerous nodule, usually metastic, I first, under cocain, split the skin over the nodule then inject eucain B. solution and bore in with the caustic.

It is best to leave the necrosed mass in situ, as nothing is gained by its immediate removal, and troublesome bleeding may follow. Generally a dry powder, as subnitrate of bismuth, is put on, which helps the appearance a little and aids the air in drying the mass. The dried eschar prevents unpleasant oozing and overflow from the treated surface. Plain or salicylated, rubber adhesive plaster or the constant presence of a grease or simple salve helps hasten the loosening of the eschar, and I often finish the separation with a pair of scissors, without pain or bleeding.

Any small remainder of eschar soon comes away and the wound heals by granulation under treatment by proper methods, leaving a small and not unpleasing scar. The smooth thin scar left after the use of caustic potash is one of the valuable points in its favor. Its special action on epithelial structures accounts for its almost selective effect upon the disease in epithelioma.

Caustic potash is applicable in any circumscribed and non-metastatic cancer where it is impracticable to use the knife, and there are many situations where it is not well to use the knife because of the danger of cutting into the growth and transplanting the disease to healthy tissues. I consider the knife as efficacious where there is plenty of room for wide excision. Whether caustic potash produces an inflammatory wall which chokes outlying cells I am not prepared to say.

In some cases I have found it best first to destroy diseased tissues with caustic potash, then, after a healthy surface appears, do the plastic operation required for repair of the defect.

In many cases caustic potash is preferable to the knife because it simplifies the preparation for treatment, does not run counter to the patient's prejudices, and because it destroys absolutely all diseased tissue which it meets. The after-treatment is however much longer than after an excision, provided excision removes all the disease. The ideal treatment of localized skin cancer would be, in all cases, to destroy the disease with the caustic potash, and as soon as inflammation subsides and a clean wound appears do an excision followed by the proper fitting and stitching to make a good cosmetic result and hasten the end of treatment.

Caustic potash is preferable to arsenic paste because of its far quicker action and the possibility of keeping the

patient under observation during the time it is employed, and because it is safer and as efficacious.

The description of the action of some of the other caustics, as given above, shows sufficiently the superiority of caustic potash.

But brief reference will be made to cases. I have a great number of small cases on record which were treated with caustic potash, remaining well to this time after treatment given from one to seven years ago. A remarkable case was that of an old gentleman whom I did not wish to treat. Under my direction he went to an expert with the arsenic paste, in another city, and was pronounced cured in three or four weeks. The disease had occupied the left side of the nose and the cheek adjacent and part of the upper lip. A year and a half after the arsenic treatment he returned to me with involvement of the cheek from near its middle third, the left side of the nose, the nostril and base of the upper lip on the left side. There was a separate lesion on the bridge of the nose and one on the right ala.

The disease was persistently treated, point by point, as the need arose, many lesions were cured and the rest put in such condition that a little caustic potash now and then to a suspicious point kept it in control. There is good scar tissue and the patient in robust health, according to my last record of the case, there being only one unpleasant point, at the naso-labial junction. The best of the treatment was given this patient nearly two years ago. He is now about 74 years old.

In November, 1899, I operated on an old lady for recurrent carcinoma of the chest wall, and for disease left by a previous operator in the subclavian and axillary regions. Everything was removed from the upper chest but the ribs and intercostal muscles. Carcinomatous nodules had to be dissected from the axillary vein and the

whole axillary space was cleaned out. The axilla and the region of the neck and clavicle have shown no evidence of recurrent disease, but several pea to finger-tip sized subcutaneous nodules have appeared from time to time on the chest. These have been destroyed with caustic potash, the skin over them first being split. In this way I have been able to prevent the growth of those intractable nodules which often become large, diffuse and form extensive metastases.

A case of cancer of the lower and inner sides of the orbit and the cheek and nose adjacent has been kept under control with caustic potash and seems in a fair way to get well. The treatment has been conducted without the slightest injury to the eye.

These cases with unfavorable prognoses have been reported as an example of what can be done with bad cases by proper treatment and attention. There are many others on my records which serve to confirm my claims as to the utility of caustic potash, but it is not necessary to detail them here.

In conclusion, it may be well to warn against the too conservative treatment of any form of cancer; whether this conservatism shows itself in a fear to do anything, sympathy for the patient, or dread of disfigurement. Leaving the disease alone is as dangerous as wrong treatment. The disfigurement of treatment is better taken all at once rather than in broken doses for months or years, with nothing but a horrible death at the end.

64 Marietta St.

ON THE USE AND ABUSE OF NASAL SPRAYS.

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Two years ago I read a paper before the Georgia Medical Association entitled "Some Fallacies in the Modern Treatment of Nose and Throat Diseases." In this paper I called attention to the fact that nasal sprays when rightly used were of great benefit to the patient, but when used injudiciously they were absolutely harmful. The more extended my experience becomes, the more firmly convinced I am of the truth of the above statement. Normally, the mucous membrane lining the nasal cavities and nasopharynx is sensitve in the extreme, and this lack of sensibility is present only when the membrane has undergone a chronic catarrhal condition, or when there has been a prolonged use of nasal sprays.

This first proposition is well exemplified in noting the anesthetic condition of the nasal mucous membrane as seen in patients suffering from chronic catarrhal deafness. In such, manipulations can be carried on in the nose and nasopharynx which, if attempted in others, would produce the most excruciating irritation.

Over stimulation of any glands will lead to atrophy from exhaustion. One of the main functions of the nasal cavities is that of moistening and warming the inspired air before it reaches the lungs; hence the necessity of breathing entirely through the nose and of having a moist state of the nasal mucous membrane.

All irritation of this membrane must cause an activity of the mucous glands, with consequent increased flow of the nasal secretion. This is seen for instance in the irritation produced by the presence of dust and chemical fumes in the atmosphere.

All substances placed in contact with the nasal cavities are irritating in various degrees, depending upon the character of the substance used and its mode of application.

Local applications are made to the nasal cavities in either of three ways: First, by means of inhalers, where the vapor is sucked into these cavities by an effort on the part of the patient; second, by sprays or atomizers, where the substance in finely divided particles is forced into the cavities by means of compresed air; third, by means of cotton on the end of a probe.

Of all these three methods, the use of the spray or atomizer is possibly the most popular, but each has its sphere of usefulness. Like all good things the spray has been much abused. When we speak of sprays we mean not only those used by means of compressed air, but also the various hand-atomizers.

Primarily, we might say that sprays are used for three purposes: (1) for cleansing purposes; (2) for stimulating qualities; (3) for soothing effect upon the mucous membrane.

Secondarily we might say that the abuse of sprays consists in: (1) the medicinal substance used; (2) the frequency of its use; (3) the force of the spray.

Let us now consider the first group. Physiologists tell us that the mucous membrane of the two nasal cavities secrete about one pint of fluid within the twenty-four hours. This is of course more or less evaporated in performing its physiological functions. In inflammatory conditions this amount is greatly increased, which is manifested by a discharge either anteriorily or posteriorly. In

acute inflammatory conditions, as in acute coryza, there is an engorgement of the blood-vessels with transudation of serum producing a watery discharge. In chronic conditions the submucous tissue is involved, the mucous glands are more active, and the discharge becomes decidedly thicker and mucoid in character.

If there be added to this latter the presence of pus-forming organisms, the secretion may then take on a more muco-purulent character.

Bacteriologists tell us that various micro-organisms normally exist in the secretions from the nasal mucous membranes.

If the mucus which is poured out from a chronically inflamed and thickened nasal membrane be allowed to remain in these cavities, such will almost certainly become semi-purulent in character, and will be a marked irritative factor in producing more secretion. This is well evidenced in children, who are notoriously in the habit of not blowing their noses. For this reason a muco-purulent rhinitis in such is always difficult of cure. Children should be taught to blow out the nasal secretions at as early an age as is possible, and thus prevent much catarrhal trouble later on in life.

Nasal sprays for cleansing purposes have no place in acute inflammation, but find their chief benefits in chronic conditions where there is an abundant mucous or muco-purulent discharge. By cleansing sprays we mean such solutions as will dissolve and cleanse off the mucus of the nasal cavities, leaving the parts in a condition to receive the proper nasal therapeusis.

The only solution which will accomplish this result is one which is watery and alkaline in character. Solutions made with Seiler's antiseptic nasal tablets, or even one with common salt and bicarbonate of soda, will accomplish this result. Of late oily sprays have become almost of

universal use, but in my experience they have absolutely no place in nasal therapeusis when we desire to cleanse the nasal membrane, pure and simple.

2. Sprays used for their stimulating qualities can be either watery or oily. In these cases, what we desire to accomplish is, to stimulate and promote a healthy activity of the mucous membrane. Such a condition only arises in those chronic cases where the mucous membrane is more or less atrophic, producing a certain degree of dryness in the nasal chambers. Even in these cases there is but a limited use for the oily sprays, since the frequent application of the same has been shown to produce just this pathologic condition of the nasal mucous membrane which we are trying to obviate.

Many of the antiseptic solutions now placed upon the market contain just the ingredients necessary for a stimulating spray when properly diluted, as for instance Listerine 1 in 10, Formalid 1 in 8, Pasturine 1 in 8, Borolyptol 1 in 8.

For oily menstruums the following substances are useful: campho-menthol, 20 drops to the ounce; crystal iodine 1 grain to the ounce; terebene, 15 drops to the ounce.

3. Soothing sprays are indicated in acute congestive conditions, or where we wish to give the surfaces a soothing coating after the use of the cleansing or stimulating applications. It is here that we find the chief use of the oily spray. After a trial for several years of various substances, I find that a benzoinated oily menstruum or one with a few drops of terebene in it, is by far the best. Benzoinated albolene is excellent. I frequently use pure white melted vaseline, using it while it is yet hot and in a liquid state. In fact, I consider it essential for successful treatment, that all sprays of the oily variety should be heated before such enters the nasal cavities.

The abuse of sprays consists in, first, the improper use

of spray solutions, as has been mentioned above. The indiscriminate use of different substances in an atomizer, without due reference to its suitability to the given case, is a most egregious error. Such frequently does harm to the nasal mucous membrane, and certainly does not increase the reputation of the physician. Each case is a law unto itself, and as such requires discriminate treatment. Sprays are excellent in their place, but every case coming to the rhinologist does not require their use. In fact, many of our best rhinologists condemn the use of nasal sprays altogether, claiming that more harm than good is produced through their use. In Germany one rarely ever sees a rhinologist make use of a spray. If they were confined more to the pharynx and nasopharynx there would be fewer afflicted patients.

The second abuse of the sprays is the frequency of their use. This is a great and growing evil among rhinologists. The popular use of late of the menthol oily spray is largely responsible for its error. Then again, the desire on the part of the rhinologist "to be doing something" is another fruitful cause. Experience teaches me, as I have stated in a previous paper, that there exists a "spray habit" just as we find that of cocain and morphine. This occurs among patients who use the menthol spray. While menthol is a valuable nasal therapeutic remedy, I yet think that the harm it has done to nasal mucous membranes far outweighs the good. The cooling sensation produced is most refreshing to the patient, and, like cocain, seems to open up the stuffy nasal passages, but my own experience shows me that a reaction of dryness is sure to follow a prolonged use of the same, and this necessitates a more frequent application in order to overcome just this subjective sensation.

The third abuse of the spray consists in the force of the spray. This of course applies more particularly to those

used by means of the compressed air. I have heard patients complain that when they had previously been treated the use of the spray was always followed by severe bleeding. This I consider absolute barbarity. A compression of 15 pounds is quite sufficient force with which to throw liquids into the nasal cavities. A force greater than 20 pounds always causes an abrasion of the mucous membrane, especially if watery solutions be used. Traumatism of the membranes by use of such strong compression in the sprays always works serious injury to the same. Hence judicious use in the force of a spray must always be taken into consideration.

In speaking of sprays, mention has not been made of the use of a solution of cocain. Mention is made only for the purpose of condemnation. I have never seen a case which required a spray of cocain, but I have seen cases of the cocain habit which had its origin through just such a mode of treatment on the part of the physician. I always apply cocain by means of cotton on the end of an applicator, thus limiting its action to the desired portion. If this be done, there need never be any fear of cocain intoxication. I think that it is almost criminal to spray a solution of cocain in the nose, especially if it be a chronic case, for I am firmly convinced that the number of cocain habitues would be lessened if this advice were heeded.

In conclusion, allow me to say that the views herein expressed are those deduced from my own personal experience, and in no way authoritative. Each rhinologist naturally thinks for himself, and I doubt not but that there are many such who will not agree with these ideas of mine, but if I can cause nose and throat workers to study more thoroughly the use of nasal sprays, then I shall feel as if this paper has accomplished some good.

DISCUSSION OF DR. ROY'S PAPER.

Dr. Hobbs: I think Dr. Roy's first statements cover the subject about as I would place it myself; that is, no objection to sprays, except their misuse. I think that is about as far as we can go in any nasal sprays. I think that all things have a potency for good, and they have also for evil.

As for the use of the two kinds, the aqueous and oily sprays, I have never used any but the latter, except where I want to use cocain or orthoform just before operation to produce anesthesia. The Doctor alluded to the use of sprays in Germany. Last summer I found that sprays, particularly the oily sprays, were being used much more than ever before, and I was told that they had increased for the last two or three years for the medication of the lower air tract—in London, particularly, the use of vaseline and other thinner petroleum extracts were used for this purpose.

I will have about the same thing in my paper that covers the subject, and I make these remarks now as I may not get to the subject of my paper.

Dr. Ross P. Cox: I would call Dr. Hobbs' attention to the fact that Dr. Roy's paper is on nasal sprays, and not the lower air passages.

I want to call attention to the most common form of abuse of sprays, that is, whether by the doctor at the office or the patient at home, and that is the use of the cold watery sprays, as Dobell's and other solutions in acute inflammation of the nasal mucous membrane. The patient takes it home, and through winter and spring has more or less rhinitis, and he takes down this cold water spray and fires it into the nose, and nearly always with the result of increasing the trouble. In acute rhinitis where we have engorgement of the blood vessels, they will usually be

injured and not improved by the cold water spray, no matter what you put in it. If it is necessary to open the nose with a spray, use the adrenal extracts and chloretone, with or without depletion.

Dr. C. H. Peete: I like Dr. Roy's paper very much, and agree with him thoroughly in his methods of using sprays and his ideas for using them. In fact, I agree with him thoroughly in his entire paper.

I think the menthol sprays have done more harm than good. They do good where used as prescribed, but people will take the prescriptions back to the druggist and have them refilled for other purposes.

In regard to the watery sprays, I do not see how the nasal cavities can be thoroughly cleansed without using them, but I would not use the watery spray in acute conditions.

Dr. Roy (in closing): I have nothing further to add, except to simply amplify what Dr. Peete said. The point that I wanted to bring out was, that where you have a large amount of chronic discharge the oily sprays will not get rid of the mucus, and as long as it is there it is accumulating on the turbinate bodies, and with the organisms present, is sure to increase the condition, and so long as it does remain there will be a chronic condition. You cannot cleanse it without a watery spray. Oil will not mix with the watery condition of the mucous membrane. Therefore you would use a watery spray to cleanse the surface and then you can use the emollient sprays to coat the surfaces. In acute conditions you would not use the watery sprays, as Dr. Peete has mentioned.

The use of the campho-menthol I only mention here to condemn, except to a certain degree. But I have seen people who cannot start a day's work without spraying the nose to get the cooling effect. They get into a

regular habit. What is the effect? It dries up and stops the secretion and keeps the condition up. It is doing more harm than anything else in nasal therapeusis.

My paper was simply to make the point clear as to the proper use of these sprays.

PROTARGOL, ITS EFFICACY IN OPHTHALMIA NEONATORUM AND TRACHOMA.

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In presenting this paper it is not my purpose to advocate strictly proprietary preparations, nor to extol the vaunted virtues of such as contrasted with the many legitimate and official drugs of the pharmacopœa; but, rather, to record the result of an experimental research conducted solely with the intention of ascertaining the efficacy of one of the newer synthetical compounds. And while not unmindful of the utility of that form of medication which has "stood the test of time," yet, in this age of progress, when new methods and measures usurp the attention and command the co-operation of a thoughtful constituency, one must needs of necessity pay due homage to whatever in his experience has most abundantly redounded to the amelioration of mankind.

One succeeds through experience, and profits through success If, therefore, greater good can be accomplished through the instrumentality of a remedy thoroughly ethical in its composition yet proprietary in fact, it behooves the profession, as a patron of progressive science, to familiarize itself with and adopt remedial agents best calculated to subserve its ultimate and desired end.

No stigma can accrue to him who attains an objective point—whether by official or non-official combinations; for the primal principle of medicine is embodied in a set determination to alleviate diseased conditions, and permanently,

with the utmost dispatch; and to employ in the elimination tion thereof those preparations which, although innoxious in themselves, are, nevertheless, most radical in effect. With uniformity of opinion and a relegation to oblivion of minor technicalities in the administration of drugs, and a greater latitude to the physician in their usage, humanity will be spared much needless suffering and posterity endowed with a nobler heritage.

To exhaustively discuss ophthalmia neonatorum and trachoma before so distinguished a gathering would be superfluous and but an imposition; consequently it were best to generalize and leave specific consideration to the many voluminous texts on the subjects—presenting for your deliberation the therapeutic and practical rather than their theoretical and abstruse aspects.

By ophthalmia neonatorum is understood a purulent conjunctivitis in the new born, but not necessarily of gonorrheal origin; for, in many cases, careful examination of the discharge has failed to verify the presence of the characteristic gonococcus. The conjunctiva of the infant seems peculiarly susceptible to all vaginal secretions that may be pathological in nature; and while for destructiveness and virulency the gonococcus may not be absolutely essential, it is, nevertheless, the better plan to seek for and suspect its existence. Almost invariably the infection originates in the vagina of the mother; and by adopting proper prophylaxis it is possible to prevent and permanently stop its ravages. "What that means we can more fully understand when we call to mind that more than one-quarter of all the blindness of the civilized world at the present time is caused by this disease." That its prevention is a certainty was first demonstrated by Professor Crede, of Leipsic, in 1882.

Of Trachoma, Norris and Oliver, in their admirable work on the eye, say: "Of all inflammatory disease of the con-

junctiva this is of most importance, on account of its widespread diffusion, the chronicity of its course, and the disastrous results which are liable to attend it." Ophthalmia neonatorum may be in itself more directly pernicious, but, fortunately, is not as frequent. As yet microscopy has not ascertained its etiology, nor has pathology elucidated its diagnosis. We know little save that it is due to some peculiar diplococcus. However, especially in advanced cases, the clinical picture is unmistakably clear and should preclude error. Primarily an affection of the conjunctiva, it is mostly chronic in course, "though subject to exacerbations and remissions of inflammation, due to a morbific deposit or change in the tissue." This with the lapse of time causes a "destruction of the parts surrounding it, a cicatrix being left behind as the result of its disappearance, with marked tendency to contraction." Bad hygienic surroundings apparently presage an attack. Filth, poverty, and over crowding enhance its development. Muttermilch contends that per se it is not contagious, but many disagree with him. Any inflammation may eventuate in trachoma. The best authorities proclaim it not a simple local disease, but, rather, the local manifestation of a dyscrasia. Negroes appear immune to its influence. It may be unilateral or bilateral; and, in the light of modern investigation, "has its seat in the adenoid tissue of the conjunctiva."

Having indulged your time in this epitome, let me direct your attention to the local application of protargol as a curative factor in the aforesaid insidious conditions.

Some few years ago Professor Neisser, of Breslau, reported his results from the use of protargol; and pronounced it the best, safest and most reliable remedy yet recommended for the treatment of gonorrhea. Since then its use has become universal. Dr. A. Darier first demonstrated its value in ocular therapeutics and lauded its vaunted virtues. My testimony is in accord with his experience; and

many noted ophthalmologists will voice a similar sentiment.

Protargol exists as a fine yellowish powder, and is freely soluble in water—its solubility and color in solution depending on the degree of concentration. Chemically it is a silver proteid preparation, containing eight and a fraction per cent. of silver in organic combination. It is not precipitated by albumin or salt solution, and is unaffected by air or heat. Only to a limited extent are solutions exposed to light influenced; and this may be obviated by keeping the same in dark bottles. Preserved in this manner it will remain unchanged indefinitely.

Numerous clinical observations have fully confirmed Neisser's contention as to the germicidal activity of protargol. He found that a solution of 1.2000 prevented the growth of bacteria, while nitrate of silver was effective at 1.5000. Nevertheless, while the latter demonstrated a great germicidal strength in the test tube, the former, not being precipitated by blood-serum and other albuminous fluids, developed a greater penetrating power in the tissues.

Bacteriology has proven its capability in eliminating or arresting the growth of micro-organisms. While this is true of silver nitrate its influence is, on account of its proneness to precipitate albuminous compounds, more superficial. Almost immediately after the application of nitrate of silver to an inflamed conjunctiva a grayish membrane—the albuminate of silver—is formed upon the surface. This in combination with the neutralizing effect of the sodium chloride contained in tears, and consequent lack of penetrability into the tissues, has a tendency to markedly lessen its bactericidal value, and to minimize the chance of destroying those microbes which linger and festively sport beyond range. Protargol, on the other hand, when locally applied, has a remarkable effect on mucous membranes.

Its power of penetration is unprecedented, yet it does not sear the tissues nor stain either the conjunctiva or skin.

Relevant to the method suggested and introduced by Crede, in 1881, and which is to-day more habitually employed than any other, it may be said that in maternity hospitals in which it has been systematically followed, the mortality and epidemic character of conjunctival blenorrhea has become appreciably less. Its popularity must, however, remain confined to institutions of similar import. In private practice it can not be extensively advocated; and, consequently, protargol seems destined to supply that long-needed prophylactic which can be used indiscriminately and as a routine measure without detriment by the most mediocre of midwives. Crede's method consists in "instilling one drop of a two per cent. solution of nitrate of silver into each conjunctival sac after cleansing the infant." The eyes are then wiped thoroughly with sterilized cotton; but the subsequent reddening and inflammation are allowed to subside spontaneously. It is a well-known fact that the conjunctiva in children is frequently extremely sensitive and susceptible to chemical reactions, consequently, oftentimes the mere instillation of the solution advocated by our distinguished contemporary will manifest a deleterious and irritating influence. Therefore, it behooves us to seek out some form of medication which can be brought into requisition by midwives without difficulty, and without requiring especial dexterity, and which will at the same time, without irritation, effectually act as a prophylactic against gonorrheal conjunctivitis. The fact is evident that, as is true of silver nitrate, to be used successfully demands that its application be made compulsory in the divers places where the poor are brought for treatment; and, similarly in conjunction with other hygienic dogmas, if success is to be obtained through the instrumentality of this method in private obstetrical work, the suggestion must be diligently

enforced, and unequivocally, in every babe that is born. Lax measures will yield lax results. Rigid discipline will bless posterity.

Protargol, unlike nitrate of silver, is not decomposed by, nor does it form precipitates with, albumin or salt. Not being "converted into insoluble or inert combinations," it can, therefore, exert its true therapeutic effect. The nitric acid radical of silver nitrate acts as an irritant and caustic, that, as Dr. Furst of Berlin, suggests, doubtless "readily macerates in every case the uppermost layers of delicate epithelium." The slight cauterization eventuating and the subsequent irritation soon pass away, provided the medication was practiced by an experienced hand; but how infinitely better is it to give the preference to an article less severe in its effect, yet with a greater penetrative power to undermine the gonococci that lay dormant and deeply imbeded within the epithelium! Then, again, the absence of the redness and swelling of the lids; the elimination of the secretion that accompanies the employment of its sister salt; the lack of pain and discomfort arising from its use; the celerity and ease of its application, despite the strength of the solution; the absolute freedom with which it can be applied to any portion of the eye; the great clinical advantage that it can be "combined with such substances as sodium chloride, and the alkalies, etc., and is unaffected by cocain, atropin, eserin and other allied anodynes used locally in the eye," and the decided prestige attained in the treatment of trachoma, but lend a halo to its wide range of usefulness in the field of ophthalmia. To summarize, protargol is useful in every condition in which nitrate of silver or any other antiseptic is indicated.

In reviewing the data in hand, extending somewhat over a period of two years, I am amply persuaded as to the efficacy of protargol in pyogenic and trachomatous eye affections. The results obtained, however, are commensurate

with the strength of the solution employed. In acute conditions the most gratifying results were derived from a strength of at least twenty per cent. The frequency of application is, likewise, a potent factor, and conducive to success. Should the desired end not prove flattering, it is essential to increase either the strength of the solution or repeat its application. This may be done as often as is deemed necessary. An ordinary swab of absorbent cotton firmly attached to an applicator will serve its purpose admirably. This should be well saturated and rubbed thoroughly over the diseased parts. On account of its unirritating property no apprehension need be felt. No harm can eventuate, consequently it is advisable to take advantage of the opportunity to completely medicate the cornea, conjunctiva, or retrotarsal folds, as may be indicated. The subsequent use of salt is superfluous, but the employment of ice pads should be urged. With proper discretion and care no evil consequences should follow. It is my habit to make use of solutions ranging from four to twenty per cent. in strength; but always to suit the exigency of each individual case. Under this plan of treatment the discharge rapidly decreases, and soon loses its purulent character. The chemosis and pain appreciably diminish, and the mucous membrane resumes its normal appearance and condition.

In chronic trachomatous cases the lids are first squeezed with Knapp's roller forceps and protargol thoroughly rubbed over the diseased surface. In this latter condition the subsequent application of pledgets of cotton soaked in ice water appears to exert a markedly beneficial and soothing effect in preventing a baneful reaction. Cases so treated show a rapid convalescence and progress to an ultimate and permanent recovery with gratifying celerity.

In further evidence let me present the following cases, each subjected to the plan of treatment as above outlined:

Case 1.—The mother of this patient, an infant of six days, and white, was delivered by a midwife, and without apparently even an apology for prophylaxis. On the sixth day professional advice was sought; and an examination revealed an acute ophthalmia in both eyes. The discharge was thick, profuse, and purulent and the conjunctiva greatly swollen. The lids were markedly edematous. Close interrogation attributed the cause not to gonorrheal infection, but leucorrhea. The eyes were thoroughly washed out with a saturated solution of boric acid, the better to cleanse them, and a twenty per cent. solution of protargol, by means of a cotton applicator applied. As an adjunct ice pads of absorbent cotton were directed used at intervals of fifteen minutes and kept constantly on the inflamed organs. Applications of the same strength were employed by me daily, and the nurse instructed, after having first subjected the eyes to a boracic acid wash, to instill a few drops of a 4 per cent. solution into each eye. By the fifth day the chemosis had disappeared, and the inflammation and purulent discharge greatly diminished. The ice pads were then used less frequently and the boric acid solution as occasion might require. The case having progressed favorably, was discharged cured on the tenth day.

Case 2.—J., an infant, white, was first seen three days after birth. Its father was then a victim to gonorrhea, and a microscopical examination of the discharge from the baby's eyes proved the presence of gonococci in abundance. The treatment instituted was the same as in the preceding case, and by the eighth day the purulency of the secretion had appreciably decreased. After the fourteenth day, there being no further evidence of the presence of the disease, the case was discharged as cured.

Case 3.—This was a case of trachoma in a white male fourteen years of age. Family history negative and condition robust. Trachoma typical in both lids. The cul-de-

sac was completely filled and the ocular conjunctiva involved. Having been chloroformed the trachomatous bodies were squeezed out with Knapp's roller forceps, and a twenty per cent. solution of protargol thoroughly rubbed into the diseased area. Ice pads were constantly applied to antagonize a possible reaction, and changed at frequent intervals. The nurse was directed to use a five per cent. solution of protargol three times a day, after having first subjected each eye to a wash of boracic acid. Without rubbing it in, a twenty per cent. solution, in addition, was applied daily by myself, and continued for two weeks. By the expiration of that time a cure had been effected, but, as a precaution, the patient was advised to use daily a five per cent. solution for a week or two. Up to the present writing there has been no further manifestation of his former condition.

Case 4.—This should in reality be considered as three distinct cases; but, on account of the similarity of symptoms and the blood-relationship, will be treated as one. Three sisters, aged respectively seventeen and twelve, presented themselves for treatment about the same time. An examination showed in each a marked trachomatous condition of the palpebral but not of the ocular conjunctiva. All were of delicate constitutions and possessed weak hearts. Operations were advised, and it was decided to begin with the oldest. Three ineffectual attempts having been made at anesthetization with consequent heroic action for resuscitation, the hope of operative interference was abandoned, and the slower plan of medication adopted. For a while they visited my office three times weekly, when a 20% solution of protargol was thoroughly applied to the eyes of each. The meanwhile a five per cent. solution was used daily at home. At length they came but twice per week; and for a period embracing six weeks the same strength of protargol was employed. The weaker solution was, of course, a part

of their daily routine practice. With the lapse of this stated time the granulations had entirely disappeared, and all previous inflammation subsided. It was esteemed advisable, however, to continue with the five per cent. solution for several weeks, as a precautionary measure. After an interval of more than a year there has been no return whatever of their former diseased states.

Within the time specified, two years and a half, approximately forty cases of ophthalmia neonatorum have come under my observation. In all protargol was used, and, with but one exception, with the utmost gratification and success. In this single instance silver nitrate alone was effective. On the other hand, several primarily treated by Crede's method yielded more readily to the influence of protargol.

During the same period fully two hundred cases of trachoma—both operative and non operative—have fallen under my care. Protargol was faithfully tried in all, and in but two has a second operation become necessary. It is my opinion, however, that subsequent interference was superinduced through failure on the part of attendants to carefully obey the admonitions so emphatically stressed. Had these been enforced, the results, in my judgment, would have been different. In my ophthalmological practice protargol has unquestionably proven itself a valuable adjunct. Based on a two and a half years' experience with this drug, it affords me no little pleasure to formulate the folowing deductions:

1. On account of its non-coagulability of albumin and albuminous products, and the facility with which it can be indiscriminately combined with the alkalies and local ocular anodynes, protargol possesses a marked advantage over silver nitrate.

2. As contrasted with the latter in the therapy and prophylaxis of gonorrheal ophthalmia, protargol does not

undergo chemical changes nor decomposition; and is advantageous in that its action is non-caustic and unirritating.

3. The harmlessness of protargol renders its application easy and safe.

4. Protargol, while exercising remarkable penetrative power, will not stain the mucous membrane nor scar the tissues.

5. Its penetrability enables it the better to undermine and eradicate diseased conditions; which faculty, in a measure, is denied nitrate of silver on account of the pseudo-membrane eventuating from its application.

6. For general prophylaxis simple washing of the eye with protargol is sufficient; but where gonorrheal infection has been proven, or is suspected, instillation is indicated.

7. As a routine measure, washing the eyes with protargol should be made obligatory in private obstetrical practice.

8. Protargol should be advocated and substituted for silver nitrate in clinics. It possesses all of the advantages with none of the disadvantages of its sister salts.

9. Protargol is reliable, safe, certain and quick in the therapeutics of ophthalmia neonatorum and trachoma if used in sufficient strength and with proper frequency.

10. In my practice and experience it has manifested itself the remedy par excellence in those conditions in which its employment has been indicated.

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DISCUSSION OF PAPER OF DR. HIERS.

Dr. P. R. Cortelyou: I have used protargol considerably during the past year in the treatment of eye troubles and inflammation of the conjunctiva, and I find it a very efficient and very effectual line of treatment. I have also used it in blepharitis marginalis and find it very efficacious. You do not get the staining from it that you do with the nitrate of silver, and it can be used more freely. I had a case of a young lady living twelve miles in the country, who came to me with inflammation of the conjunctiva with approaching granular lids, and I gave her a solution of protargol to use, and in two weeks she returned and I found that it acted beautifully in relieving the trouble. I have also used it locally on the throat and to the nasal mucous membrane with satisfactory results.

Dr. Roy: This is too important a subject not to say something on it, as ophthalmia neonatorum is as close to the general practitioner as to the specialist, and as many cases occur in the country as in the city.

As to the use of protargol, I agree with the doctor that it is a most excellent remedy, and for two years have used it and found that in most cases it acts beautifully. As he mentioned, you can make up a solution and the patient carry it with him, and can use it without any fear of bad re-

sults. You cannot give the solution of nitrate of silver to be used promiscuously. But as with anything else in medicine protargol sometimes fails. Sometimes it does not act just as you would like. For instance, in an old case of ophthalmia neonatorum, when it has gone on for several days with great swelling of the conjunctiva and there is a succulent condition, a velvety condition of the conjunctiva, then the protargol does not act so well as a solution of nitrate of silver, ten or fifteen grains to the ounce, touched to the lids. However, in many cases it is all sufficient, but it is a bad idea to think that it is a specific for all discharges from the conjunctiva. I have used it in trachoma with good results. Have seen very few cases of trachoma, where you have the cicatricial tissue, which is one true sign of trachoma.

Now, in regard to the Crede method, when I served for two years in the New York Maternity Hospital I started a series of observations and washed off the lids with 1.5000 bichloride and took another series and used Crede's method, and I got as good results from one as from another. I am firmly convinced that ten grains to the ounce is too strong a solution of nitrate of silver, as it excites a muco-purulent condition which would not have been there. Five grains to the ounce is all sufficient, and also a strength of 1.5000 bichloride. I do not think the eyes of the child are opened in utero, but the secretion is on the eyelashes, and if you will wipe off these carefully you will get as good results as if you open the lids and wash out the eye. I have proved this to my satisfaction. I believe that the ophthalmia is due to the gonococcus, and you have got to treat it as the most virulent form of that inflammation. I agree with the doctor that the efficacy depends upon the strength of the solution and takes experience to tell what strength to have for each individual case. By doing this you will have good results every time. You have to study each case to be

successful and you have to work it out, as you can not have the same remedy for each case.

Dr. R. R. Kime: I am very glad that this subject has been brought up, and I notice that the doctor states in his paper that one-fourth of the blindness is due to ophthalmia neonatorum. There is nothing more important than simple cleanliness of the eye of the child at birth. The practitioner should have on hand an antiseptic solution of mild character and use aseptic measures as well as antiseptic. If they will cleanse the eyes of the child at birth with such solution it will prevent many cases. Strong antiseptic solutions should not be used in eyes, as they irritate and favor the entrance of infection. I always have the nurse keep on hand a solution of boric acid, teaspoonful to one pint boiled water in clean bottle, and instruct her to cleanse the eyes of baby with it once or twice a day. Use a clean piece of absorbent cotton each time, allowing solution to run into eye, especially if any redness or irritation of conjunctival membrane.

Dr. Hiers (in closing): I desire to thank the gentlemen for their hearty commendation of my paper. In selecting these two subjects I recognized that they were two subjects that most all are called upon to treat.

In Dr. Roy's remarks he spoke of the old cases of ophthalmia, and I would suggest to him that those cases are the ones for the increased strength of the solution. While I do not want to be placed in the light of advocating protargol in all cases, yet I want to press its claim as being the best general remedy that can be used in the city and elsewhere.

Dr. Kime credited me with claiming one-third of the cases of blindness as the result of ophthalmia neonatorum, and I would call his attention to my paper, which stated one-fourth.

I thank the gentlemen for their hearty remarks.

A CONTRIBUTION TO THE STUDY OF DEAFNESS.

ROSS P. COX, A.B., M.D.,
Aurist and Oculist to the Georgia School for the Deaf.

I beg to submit to your considertion some of the results of my recent work as Aurist and Oculist to the Georgia School for the Deaf.

Except as elsewhere stated, the time has been devoted to the preliminary work of examinations of the ears, noses, throats, eyes and accessory parts of the pupils and to the making of permanent records and suggestions for treatment on forms prepared for this purpose and bound into a book.

I have found the performance of this task an exceedingly time-consuming and patience-exacting process, requiring from two to four times as much time as would be necessary with those of fair speech and hearing. These facts account for the apparently slow progress.

I have examined the ears and related organs of sixty-eight pupils.

Of these thirty-nine are girls and twenty-nine boys. Their average age is thirteen and one-half years.

There was one case of suppurating mastoiditis, with fistulous discharge and sharp inflammation of the adjacent lymphatics.

This patient improved so much under mild measures before permission to operate could be secured that surgery was not used. The drum of the ear concerned was perfectly normal.

There was stenosis of the external canal of one ear.

The external canals of seven ears were filled with hard wax, which was removed in the usual way.

The following diseases have been given by the parents or guardians as the causes of the deafness of these sixty-eight children, viz.: Measles 2, catarrh 3, whooping cough 1, illness in infancy 1, falls in infancy 2, quinine 1, rising in the head 5, scrofula 1, meningitis 4, fever 1, grippe 1, born deaf 41; and from causes unknown 5.

Based upon all the information, both subjective and objective, I have been able to obtain, I have in a general way classified the causes of deafness pathologically as follows, viz.: Those associated with non-suppurative inflammation of the middle ear, with adenoid vegetations of the naso-pharynx, 15, and without adenoids 6; those originating in the suppurative inflammation of the middle ear, with adenoids, 7, without adenoids 2; those due to congenital lesions of the inner ear, the nerve tracts or brain centers 24; perception lesions due to meningitis 3; perception lesions, not congenital, and not originating in the conduction apparatus, but from causes undetermined, 11.

It will be noted that the thirty cases of middle ear inflammation were associated with adenoids in twenty-two instances, which constitutes thirty-three per cent. of the total number of cases. Attention is also called to the fact that the pathological classification gives the number of the congenital deaf as twenty-four, in contrast to that of the parents and guardians, which places the born deaf at the much higher figure of forty-one.

My investigations encourage the opinion that even when the child had deaf parents, or deaf brothers and sisters, the cause of deafness is not always due to pre-natal defects of the ear or brain, but not infrequently to an inherited tendency to disease, as, for instance, that of lymphoid hypertrophy, resulting in adenoids, whose important role as a

cause of deafness is now so definitely established. Some of these children with blood-related parents or a deaf brother or sister, according to the testimony of the parents, did not become deaf before a certain age.

For example, I have records of five pupils, representing five different families, who have blood-related parents and other deaf relatives, yet who did not become deaf before the ages of two years, thirteen months, nine months, one year, and time unknown, respectively, and whose parents give as causes of deafness high fever, catarrh, rising in head, and cause unknown. I have also notes of two other unrelated pupils who have deaf brothers or sisters, who became deaf at the ages of eighteen months and one year, and the causes given are rising in the head and unknown.

Of these seven children, six show evidence of severe and one of moderate prolonged middle ear disease, six have adenoids, four have nasal stenosis, and four have enlarged faucial tonsils.

Consanguineous marriages are well known to often produce a scrofulous or tubercular tendency and predisposition to lymphoid development, resulting often in large adenoids and tonsils, which may produce deafness at so early an age that the inability to hear was supposed to have been congenital.

It is highly probable that deafness, like many other defects of unsound or consanguineous parentage, is often not in fact congenital, but a result of lessened vitality, impaired physiological energy, which allows the parts concerned to fall an early and easy prey to untoward influence.

Eight children of the sixty-eight have parents who are first cousins, two third, and one fourth cousins, representing in all ten families.

There are sixteen pupils who have deaf relatives.

Twenty-three pupils out of the sixty-eight had one or more practically normal ear-drums, making thirty-eight

absolutely or nearly normal drums to ninety-eight diseased ones.

The causes of deafness of the 23 pupils, with one or more normal drums, as given by the parents, are, illness in infancy 1, rising in head 1, meningitis 2, fall 1, quinine 1, catarrh 2, congenital 13, and unknown 2.

Ninety-eight drums showed more or less decided effects of disease, such as great retraction, sinking, hypertrophy, atrophy, scars, chalk deposits, perforations, more or less fixation of ossicles, etc.

In only two cases was there existing suppuration of the middle ear, the pathological process having, for the most part, expended itself, and become extinct.

I have felt justified in placing the number of children who have adenoid vegetations at forty-two, though in only about twenty-five were the growths actually seen or felt, the others being inferred from follicular pharyngitis, mouth-breathing, snoring, etc.

Thirty pupils had enlarged tonsils. Twenty-six had nasal stenosis on one or both sides, due to deviated septa, spurs, enlarged turbinates, or general narrowing.

Of the forty-one cases given by parents as congenital, twenty-nine had bad drums and nineteen had adenoids. Only four of the twelve with normal drums had adenoids.

The hearing tests gave important and interesting results. These were made with the human voice, Galton's whistle, and a series of two tuning forks, C-2, and C-3.

In only the last thirty-seven cases did I keep records of the parents' statement of the hearing. This gave thirty-seven as totally deaf, and eleven as partially so. My examination of the thirty-seven so-called totally deaf, by the fork test, showed only two to be absolutely deaf, eleven very nearly so, and twenty-four with fair or good hearing for some or all of the forks.

If we take the sixty-five cases in which fairly satisfactory

tests with forks were made, we may state that six heard all the forks in both ears, five heard all in one ear, eight were deaf to all forks in one ear, and about ten practically heard no forks in either ear.

The C-2 fork was heard, by air only, in two of the 130 ears, by bone only in forty-three ears, and by both air and bone in forty-seven ears.

The C fork was heard, by air only, in twenty-eight ears, by bone only, in one ear, and by both air and bone conduction in sixty ears.

The C-3 fork was heard by air only seventeen times, by bone only five times, and by both bone and air twenty-eight times.

In thirty-two of sixty-eight cases the right ear was the better hearing ear, and in sixteen the left ear heard best.

In 106 ears the loud voice directly in the ear was absolutely inaudible in ten ears, it was heard only as a noise in seventy-two ears, vowels were heard in fourteen ears, words in seven ears, and sentences in three ears.

In 136 ears the Galton whistle was heard at some point in seventy-two.

The lowest fork was heard better by air conduction in only five cases out of 136, while by bone conduction the lowest fork was heard best in ninety-four cases.

The highest fork was heard best by air in twenty-nine cases, and by bone in seventeen cases.

Some cases had perception of the loud voice, but no perception of the forks.

There is good reason for believing that some of those who apparently failed to perceive any sound could by other sounds or a little drilling be aroused to some degree of hearing. My belief is that the per cent. of the children examined who are absolutely deaf to any and all perception of sound is little over and probably under five. This fact is of great practical importance.

During the last twenty years the method of teaching the deaf has been largely revolutionized. Experience has established that spoken language and lip reading do most to minimize the natural disadvantages of the deaf. In all promising cases the present rule is to accomplish this slowly, laboriously, artificially, mechanically, without any use of or dependence upon any possible remnant of hearing, solely through the sight and touch.

During recent years the representatives of yet another system, not new but greatly improved and revived, have brought the auricular method more and more into favorable notice. The simple plan of this system is to arrive at speech by the natural route of any possible remnants of hearing. It proposes to make practical use of any manifest hearing and to arouse the latent perception of the psychically deaf by a system of methodical hearing-exercise. In the general wreck of the hearing precious fragments of the same are often overlooked, covered up and lost, like treasures of art under heaps of earth and rubbish. The auricular method seeks to exhume these buried treasures and restore them to their appointed places in the temples of the mind.

Experts estimate that twenty to eighty per cent. of the inmates of institutions for the deaf could be benefited by this system of improving possible hearing by exercising it. Certain it is that many persons, hitherto supposed to be totally deaf, have by this system been brought not only to speak, but actually hear words and sentences, and thus have their usefulness and happiness vastly increased.

The most distinguished and successful representative of this method at present is Prof. Urbantschitsch, of Vienna, whose pupil I had the good fortune for a time to be, and by whose great and genuine success I was profoundly impressed. Betzold of Munich, Currier of New York, Gillespie of Omaha, and many others have achieved signal success along this line and are using it with enthusiasm and

great satisfaction. Not only do these pupils acquire readier and more certain interchange of ideas with hearing people, but also modulation, pleasanter voices, and the protection from accidents that even very imperfect hearing gives. The drawbacks to the method are the untiring patience, the high skill, and the great time that its proper use requires.

The principles of this method are practically for all degrees of impaired hearing, and a knowledge of them is important for all physicians, as the probable advisers of affected persons.

But whether we teach speech naturally, through the ear or artificially, through sight and touch, certain it is that stopped noses, adenoids of the naso-pharynx, enlarged or inflamed faucial tonsils, and all other agencies that block or fill the resonating spaces, clog and embarrass the tongue and palate and promote disease of the whole body, but especially of the organs of speech, respiration and hearing, must be gotten rid of if we hope to approximate the best results.

It is equally certain, if experience teaches anything, that timely and proper management of many of these conditions is now practicable, obligatory, and sure to prevent much deafness; for I am convinced that if deafness is to be decreased as blindness has been, it will be done in the same way, far more by prevention rather than cure. Of course I speak of confirmed deafness, such as is found in institutions for the deaf, where, I think, only a relatively small per cent. can receive any benefit to the hearing by any treatment.

Since the deaf depend so largely upon vision, the condition of their eyes is of special importance.

I have partially or completely examined the eyes of sixty-eight children, and this number probably includes about all the noteworthy defects to be found among the 130 white pupils, as all who by their own statement or by the observa-

tion of the teachers, were supposed to have any eye trouble are here included.

Of the sixty-eight, eight had distant vision above normal, thirty-six were normal, two had one-third vision, two had one-half, eleven had two-thirds, two had two-fifths, one had one-tenth, two had one-thirtieth, one was blind in one eye and had two-thirds in the other, one had two-thirds in one eye and one-fifth in the other, one had one-half in one eye and one-tenth in the other, and one had one-third in one eye and one-twentieth in the other.

Forty-five, for bad vision or clear symptoms of eye-strain, require refraction or other treatment. Seven have been fully refracted. Of these six required glasses, and the seventh was so nearly blind from chorio-retinitis that he was taken from school for rest and treatment.

There are fifteen or twenty other pupils whose need for attention to eyes is urgent.

I find that the refraction of these deaf children requires many times the time, patience and care necessary for hearing children. One is forced to rely largely upon objective methods. I was greatly assisted by the shadow test and my ophthalmometer, which I had brought down to the institution.

EPIDEMIC SORE THROAT.

L. J. SHARP, M.D., Harmony Grove.

I desire to call the attention of this Association to this subject for the purpose of obtaining rather than giving information.

I have become very much interested in the epidemic sore throat that has prevailed in my territory since last July. I will give a partial history of a few cases that I think fairly represent the important points connected with this throat disease.

First Case.—A four-year-old child was taken with scarlet fever, July 2, 1900; afternoon temperature was 103 degrees, pulse 110; July 6th temperature had declined to 101 1-2 degrees, pulse 130; white, smooth pseudo-membrane was forming over both tonsils. Treatment was a wash of borax and salt through the nose. July 7th part of the uvula and palate were covered by the pseudo-membrane; temperature 102 degrees, pulse 150, tongue parched and marked prostration; 1,000 units of diphtheria antitoxin was given. Next day temperature had declined one-half degree; pulse reduced ten beats; recovery was prompt and continuous.

Second Case.—A child, age one year, was not well July 25th, but was playful; July 26th I saw it; pulse 144, temperature 101 1-2, breathing difficult; cough brassy; voice absent; both tonsils and pharynx smoothly coated with a white pseudo-membrane; it died eight hours later. The child that had been exposed to this child was redressed and sent to Mrs. Luthi's.

Third Case.—Mrs. Luthi, aged 35 years. October 27th her temperature was 104 1-2; white coating on the tonsils, uvula and part of the palate; palate and uvula edematous; neck glands enlarged; a culture medium was inoculated from her tonsils and incubated in my pocket. After twelve hours diplococci only were found. Treatment was a gargle of chlcride of potash and bichloride; improvement prompt. It was reported that an abscess had burst in her throat at six o'clock next morning, followed by prompt recovery.

Fourth Case.—On the opposite side of the street from Mrs. Luthi, November 21st; a three-year-old child took a sore throat and in two hours her pulse ran to 120; temperature 104; throat red; was sprayed with 1 to 1000 bichloride; followed by recovery in twenty-four hours.

Fifth Case.—A child two miles away, with no known means of communication with the other, was taken at the same time with the same symptoms; both had streptococci; staphylococci and diplococci in their throats; treatment for the latter was salicillate of soda; no special improvement till after the third day, and that was very slow; one neck gland suppurated; recovery complete in two weeks.

Sixth Case.—A child, aged six months; on November 25th, the second or third day after the first symptoms of illness, temperature 103 degrees, pulse 150; November 26th temperature 102 1-2, pulse 150; throat red; small white patch on the right tonsil; treatment was nasal irrigation of 7 to 2000 bichloride; Nov. 27th, pulse 175, temperature 102; tongue dry, red and fissured; tonsils pseudo-membrane; it died twelve hours later.

November 26th, on the second visit to this child, I found the father, aged forty-four years, complaining of being chilly, severe general pains, neck glands enlarged, throat red, white spots over both tonsils, pulse 104, temperature 104 degrees. Throat swab obtained a few diplococci only. Treatment was a gargle of bichloride 1.2000. November

27th, pulse 96, temperature 101 degrees; a large irregularly shaped white, smooth pseudo-membrane over both tonsils and palate, also one in front of the fauceal pillows on each side; recovery slow.

Seventh and eighth cases were two other children of the same family, ages about twelve and fourteen years, were taken with a sore throat November 27th, the second day of their father's illness; their pulse and temperature about normal; no germs were found in their throats. Treatment was bichloride spray, recovered in a few days, with no further developments.

Ninth Case.—Age 7 years, reported to have had a sore throat and increased temperature for a week; December 8th pulse 100, temperature 100 degrees, breathing difficult, cyanosis, voice absent, white smooth coating over part of the palate, uvula, both tonsils and pharynx. Treatment, bichloride spray and steam inhalation; next day also gave 1,000 units diphtheria antitoxin; no change in the symptoms till the third day, when rapid improvement followed.

The microscope showed the same as all the other cases

Tenth Case.—Age nine, brother to ninth case. His throat was sprayed with bichloride at my first visit to his brother, and he was sent away and returned December 15th with sore throat, chilly, pulse 132, temperature 103 degrees, white spots on both tonsils near lower margin, probably below the part sprayed at the first visit; made rapid recovery after the second day. Treatment, bichloride spray.

Eleventh Case.—Age thirty-eight; December 30th complained of sore throat, chilliness, pulse 100, temperature 101 1-2 degrees. Throat red, white spots over both tonsils; microscope showed Frankles diplococcus, Friedlanders bacillus, a long, slender bacillus unknown, streptococci and staphylococci, also a very few Klebs Loeffler bacilli in appearance. Treatment, bichloride spray and 1,000 units

of diphtheria antitoxin; slight improvement seemed to follow, but at 7 p. m., January 1st, was very restless; severe pain in the throat; pulse 100, temperature 102 1-2 degrees. I used 2,000 units diphtheria antitoxin; next morning seemed well except the soreness in the throat, which soon subsided.

I have treated between fifty and one hundred cases, I suppose, similar to these, but only a few had any pseudo-membrane, but had all the other local and constitutional symptoms. Throat antiseptics seldom failed to relieve, but diphtheria antitoxin never failed to be followed by improvement and cure where quantity was sufficient; P. D. & Co.'s only was used; simple palliatives I have not mentioned.

The constitutional symptoms were usually in proportion to the amount of throat involvement, although some had a very red, dry, fissured tongue; marked anemia frequent, feeble pulse and great prostration and only a slight throat involvement. The tonsils were always involved.

The first case in a family was always the worst, and a second case rarely occurred where ordinary sanitary laws were observed.

In only one case did I succeed in removing any membrane; that was on the inner surface of the cheek, and beneath there was only a red mucous membrane; this case had the usual pseudo-membrane upon the throat and the usual germs, also a blister on the leg containing a pure culture of diplococci and was accompanied by scarlet fever. Several had both scarlet fever and pseudo-membranous sore throat at the same time, while one in a family would have the one another the other at the same time, but always appeared to be a coincidence.

My cases seem fairly well described in text-books as Pseudo-membranous Tonsilitis; Diphtheritic Sore Throat; Pseudo-diphtheria, etc.

In the description of this disease, the white spots are said

to occur only on the tonsils and pharynx; may be so thick as to be blended, but they can be entirely wiped away unless it be little specks that may remain in the mouths of the follicles. Neck glands seldom involved; Klebs Loeffler's bacillus never found; is only infectious, no toxemia; two per cent. in adults; diphtheria antitoxin of no effect; mortality about four per cent.

In my epidemic the white spots and pseudo-membranes sometimes involved uvula, palate and pharynx in irregular patches or one continuous pseudo-membrane not removable by friction; neck glands enlarged; Klebs Loeffler's bacillus probably found in a few; contagious; variable amounts of taxemia from entire absence to the most profound; resulting in death, thirty to forty per cent. in adults of all ages, diphtheria antitoxin a prompt relief. Differing from true diphtheria which produces a greyish white pseudo-membrane followed by suppuration sometimes on the same surfaces; mortality about fifty per cent. In my epidemic about four per cent.; diphtheria at times followed by some paralysis; in mine, none.

Two of my cases, I think, had membraneous laryngitis or true croup. It is reported that eighty to ninety per cent. of the post-mortems made in New York on persistent croup proved to be diphtheritic.

My epidemic started in the summer; diphtheria usually starts in the winter. It is claimed by some that the most reliable test for diphtheria is finding the Klebs Loeffler bacillus in twelve to twenty-four hours on a blood serum culture inoculated from the throat of the patient. They stain imperfectly.

My microscopical specimens were obtained by touching an aseptic swab to the tonsils, then wipe it over a slide or culture medium. My experience in bacteriology is very limited and my other duties made it impossible for me to run an incubator. It would require about five days from

the time I saw a case until I could get a report from a bacteriological laboratory after a culture had been made, hence it was omitted. Klebs Loeffler's bacili are said not to have the characteristic appearance sufficiently to be diagnostic if taken direct from the throat and stained.

In every case where germs were found I discovered a diplococcus one-third the usual length and other dimensions the same as the diphtheria bacillus, but stained uniformly; some were arranged in rows appearing identical with diphtheria bacilli except the staining. In three there were a very few Klebs Loeffler bacilli in appearance, and a few other germs I could not recognize. I found no germs in the throat of any scarlet fever cases that were stained with methyl blue except when complicated with membranous sore throat, or were exposed to a case, nor did I find any in healthy throats. I stained specimens from other inflamed mucous membranes, especially the urethral with methyl blue, and found bacilli that appeared identical with the Klebs Loeffler.

The statements of different authorities cause me as much confusion as my own observations. Klebs discovered the diphtheria bacillus in 1883; Loeffler demonstrated its peculiarity in 1884. It has since then been recognized as the cause of diphtheria, but other germs are now recognized as contributing their share.

Jacobi says there is a streptococcus diphtheria that is contagious, and that the part played by the different bacilli is not positively known: he says a similar bacillus to Loeffler's is found in diabetes, tuberculosis of the lungs, empyema, chancre, ozena and vaccine pustules. Others claim they can be differentiated.

There has been a bacillus shown that is shorter than Loeffler's, not pathogenic for animals, called a pseudo-bacillus, and Trump says they would kill like the true. F. Schanz thinks that the cause of diphtheria may be un-

known and it becomes more virulent by the presence of micro-organisms whose effects may be destroyed by antitoxin.

Kloplix carefully studied many atypical cases of diphtheria where no pseudo-membrane was discovered; only a catarrh in the throat or ordinary follicular tonsilitis, but others infected by them had diphtheria pseudo-membrane. Many think the pseudo is the attenuated form of the true bacillus. A great deal more has been and could be said upon this subject, and I hope to hear from others. Many here are better prepared for investigation and more able to give instruction. I did not think of reporting these cases while they were under observation, or I would have been able to make it more complete.

OPHTHALMIA NEONATORUM FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.

M. L. CURRIE, M.D., Savannah, Ga.

We who treat and try to cure every disease, are inclined to congratulate ourselves for our successes, and become satisfied with results, without feeling the proper weight of responsibility, or realizing what might have occurred other than a successful termination; in other words, we too often treat what we find in an empirical way, and are satisfied; without considering the cause of the disease from a scientific standpoint, we so much pride ourselves as having cured.

Total blindness is, to me, one of the most deplorable afflictions known to man. One of the most pitiable objects of life is a child in perfect health, with indications of a long life, and no hope of ever beholding the beauties and grandeur of nature, not even the loving mother's face can it ever see. Estimate, if you please, what you would take in exchange for your eyesight, and how would you feel to know that through your neglect you were responsible for even one case of blindness.

According to statistics, about one-third of all blindness is due to ophthalmia neonatorum, and near three-fourths of blindness in the new born under one year of age, is the result of this disease.

Prof. Magnus of Breslau has shown that in Europe and Germany purulent ophthalmia caused seventy-one and ninety-one one hundredths per cent. of all the blindness in

children under one year of age, and in every ten thousand children under five years of age, it claimed as its victims four hundred and twenty-eight. More than thirty-two per cent. of the blind in our own country owe their afflictions to ophthalmia neonatorum.

Howe of Buffalo, in a collection of 5,874 cases of labor, where no preventive methods were used, found 714 cases.

In the face of these facts, should we not use our best endeavors to prevent this disease

I consider blindness one of our worst afflictions, and feel that we should use just as stringent measures to prevent it as we do smallpox or tuberculosis.

I hope the time will soon come when we will be compelled by law to use the best means at our hands to prevent the disease. Quite a number of prophylactic remedies have been tried, but that giving the best results, so far as I know, was instituted by Crede of Leipsic in 1880.

With two drops of a two per cent. solution of nitrate of silver instilled in the eyes of the newly born, he reduced the per cent. from ten and seven one hundredths to thirty-one one hundredths.

Leopold of Dresden reports five hundred births without a case by use of the same method.

I practiced in the country for eleven years, and used nothing but clean warm water and sweet soap, with good results, but in the last eight months, I have had two cases; one I treated myself with much anxiety, but in the other a specialist was called for, who took charge of the case, much to my pleasure. One of these was delivered by a midwife, who was aged, and claimed much experience, and the other I delivered, and was careful to wash its eyes myself, thinking that would do, but hereafter I shall use Crede's method unless something better is discovered.

In these remarks, I have referred to the general practi

tioner, because I know something of what he is expected to do, and because I have a brotherly feeling for him; and if I have said anything that will save to one poor soul the grand pleasure of sight, or one of my fellow practitioners the remorse of knowing he caused the loss of the same, I shall feel thankful.

THE BANEFUL EFFECTS AND CURABILITY OF CATARRHAL INFLAMMATION OF THE UPPER RESPIRATORY TRACT.

ARTHUR G. HOBBS, M.D., Atlanta.

By the phrase "catarrhal inflammation of the respiratory tract" we mean all those inflammatory conditions of a catarrhal nature which we find in the mucous membranes of the nose, naso-pharynx, larynx, trachea and the larger bronchi. Any inflammation of a mucous membrane, whether it be simple or complicated by local results, interferes with at least the functional activity if it does not, as it usually does later, pervert its physiological function to a greater or less extent.

Inflammations of mucous membranes have a tendency to, and if allowed to remain unchecked, often do, extend by continuity, either directly or through the baneful effects of contaminating excretions.

Auto-resolution is the rule in acute inflammations of mucous membranes when not repeatedly subjected to the original cause; but since the first cause repeats itself in the majority of cases, it may be expected that without assistance the acute stage will pass gradually into the sub-acute, then into the chronic, and, in some localities, yet farther into the trophic stage, with all the baneful sequences of the two latter especially.

The rules of mucous membrane pathology are applicable in a greater or less degree to all the mucous membrane of the body as well as to those of the upper respiratory tract.

That the nose was intended by nature only as an olfactory

organ is the accepted belief of the laity. But that so many of the profession apparently should yet entertain the same idea is more to be wondered at. It would seem that many doctors have never taken the time to allow it to occur to themselves that olfaction is only a secondary function of the nose, and that the space allotted to this least important of the senses is confined to a very small part of this most prominent feature.

As nature's outlet of the respiratory tract any perversion of its functions naturally exerts a baneful influence upon the deeper portions of this tract, whether this perversion be due to the inflammatory state or to its chronic results.

As an automatic organ, there are but few in the body to compare with the work performed by the lining membrane of a healthy and natural nasal mucous membrane. It supplies the proper moisture and warmth to adapt the air to the lungs by secreting an immense amount of fluid for dry and cold air to pass over, or a much less amount when the air is moist and warm, thus automatically adapting itself to the humidity and temperature of the inspired air. As in the gills of a fish, nature has supplied a large superficial area of mucous membrane surface to this upper part of the respiratory tract—about twenty-four square inches.

Binz, Onodi and others have estimated that as much as twenty-four ounces of fluid are secreted daily by this large surface when the air is devoid of humidity in order to supply it with sufficient moisture to make it suitable to the parts below where the mucous membrane is less active in its secretory function and hence less automatic in its response to the necessities of a uniform degree of humidity and warmth of the inspired air.

Nasal stenosis, as the result of some form of catarrhal inflammation of the mucous membrane of that organ and its contiguous parts, whether directly due to turbinal thickenings, accumulations, adenoid growths or tonsilar enlarge-

ments, necessitates mouth-breathing, at least during the sleeping hours, in adults, and continuously in children. In mouth-breathing the inhaled air cannot pass over more than one-half of the surface that it does when inhaled through the nose, and this small surface is insufficient to impart the proper moisture and temperature. Hence, how natural the dry throat and parched mouth of the little sufferer, in his vain effort to get nutritious blood! and when we add to this the baneful effect of the contaminated air on the lining membrane of the bronchi and lung cells, it would not be a stretch of the imagination should we reason by inference alone, without pausing to consider the many well-known and easily demonstrable results, how disastrous are the constant and continued inflammations of the upper respiratory tract, not only to the lower air passages, but to the whole growing body. Moreover, the child's general nutrition is so impaired that his physical development is stunted and he becomes an easy prey to the zymotic and other diseases incident to childhood.

What is true of the child is true in a measure to adulthood. The young adult has not only failed to fortify his breathing apparatus against hereditary tendencies, but he has actually rendered it a culture field for tubercle and other bacilli. It is not necessary to follow up the pathological results of this never-ending battle of the upper respiratory mucous membrane for physiological supremacy—I might have said "of this organ," since it has such distinct and vital functions to perform.

Acute and chronic rhinitis in some of their different phases, usually in that of the recurrent, are the causes, by extension or by pressure, of nearly all eustachian tube and middle ear diseases, the great majority of which results could be prevented, or at least checked, if properly treated in the beginning. Especially do I believe it true that fifty to seventy-five per cent. of the mastoid operations that are

now performed would be unnecessary if the inflamed nasal and pharyngeal mucosa were properly treated from the beginning.

I have recently seen in a Berlin ear clinic seven mastoid operations performed on babies during the morning clinic hours of one day. The operations were made with a few whiffs of chloroform and a prune shaped gouge. In most of the cases I saw nothing but bloody serum and blood. There had been apparently no attempt at any other form of treatment. The operator explained that it was a better form of counter-irritant, anyway, than a blister. I had always realized the great efficacy of mastoid operations when distinctly indicated, but it had never occurred to me before that the operation should be resorted to as a counter-irritant.

Catarrhal conjunctivitis is another of the evil consequences of the extension through the lachrymal duct, and it sometimes proves to be intractable until proper sprays are applied to the nasal end of the duct.

I am confident that lymphoid tissue growths in young scorbutic children can be arrested, if not aborted, before the adenoid vegetations have gained sufficient size to obstruct the choanæ. I am confident also that I have done this in a number of cases by the judicious use of vaseline sprays containing some mild astringent, resolvent or antiseptic, together with alterative tonics. When as a result of inflammation in the surrounding parts of the tract, adenoid vegetations assume a sufficient size to produce an obstruction, the now common operation of removal is indicated, and is most effectual in its results.

I realize that I do not agree with most operators in not finding it necessary to extricate the whole of the mass, although I consider it desirable. I saw Dr. Dundas Grant of London last summer make eight adenoid operations in one hour on children. He told me that he had made seventeen adenoids in one hour about a month before at one of his

Friday clinics, exclusively for adenoids and tonsils. He used only a few whiffs of nitrous oxide on the little patients and had them firmly held by assistants. This would not suggest that he considered it necessary to remove every vestige of the growth. With a careful use of cocain first, then the free use of orthoform, the operation is not a painful one, and I rarely use a general anesthetic even in the youngest child. I usually use my own fenestrated forceps first, then if necessary scrape with a malleable ring curette. A spray of suprarenal extract may or may not be necessary either before or after the operation to control hemorrhage. I find that what particles of the vegetation that may be left can be made to slough or atrophy by the judicious use of the va-cline spray medicated properly or by applications by other means. Nasal deflections, spurs, turbinal hypertrophies, polypi, etc., by their mere obstructive presence, cause mouth-breathing with all the baneful effects to the lower air passages that follow that most uncomfortable condition, together with these direct effects of mouth-breathing, we have those from the impure air inspired and from the degenerated secretions that flow from the parts contiguous to the obstruction.

Hence all such obstructions should be speedily corrected for the good alone that would follow to the lower air passages, to say nothing of the great comfort that easy and natural breathing affords. About fifteen years ago the pendulum swing in the indiscriminate use of nasal saws, gouges and drills, had about reached its height; then the pendulum took a backward course, until about five years ago the saw, in a more adaptable shape, began to regain its former place, but still with more discrimination, and particularly is this true in the resection operations of enlarged turbinate bones. But I think there has been no such reaction in the over-used gouges and drills. In my opinion, these are being laid aside for rare necessities. It is my

observation also that the galvano cautery has had about the same pendulum swing as the saw during the past fifteen years. I have used it on turbinals for eighteen years, but only by a knifelike cut through the mucous membrane to form an eschar in the tissues near the turbinal bone. This is the manner in which the operation is now generally performed instead of by the old destructive method to the mucous membrane.

Enlarged tonsils produce a train of disasters in the growing child that are not found alone in the thorax, but they retard development and weaken resistance to subsequent attacks of acute diseases.

I have amputated several thousand tonsils, and I do not recall many cases, if, indeed, any, in which the result was not all that could be desired, neither have I ever had a case of alarming hemorrhage.

I am aware that this is claiming much for tonsil amputation when perhaps the majority of laryngologists teach enucleation whether they practice it or not.

When the American Rhinological Association was organized in 1879 by the efforts principally of Dr. Thos. F. Rumbold of St. Louis, the subject of nasal sprays formed quite naturally the chief topic of its papers and discussions for the first two or three years of its existence.

By a consensus of opinion of its members, vaseline was given the preference as a basis for sprays, among other reasons, because of its soothing and emollient effects upon inflamed mucous membranes, its peculiar osmotic properties, as well as its miscibility with the essential oils and with many of the alkaloids. When skilfully used with properly selected ingredients suitable to each individual case it becomes a valuable adjunct in all perverted conditions of the mucosa, not only of the upper respiratory tract, but of the bronchi also. It stimulates endosmosis in all columnar and

columnar ciliated epithelium. But when an exosmotic effect is desirable, as in acute hyperplasias, a spray containing glyco-thymoline or some kindred antiseptic and resolvent is preferable. However, when it is desirable, and it often is so, to apply medicaments, such as beachwood creosote, oil of terebene, etc., to the bronchial mucous membrane direct it is more convenient to use some of the more fluid petroleum extracts as the excipient. All vaseline or oil sprays should be made with a fine pointed atomizer, such as De Vilbis, when used in the office, but when prescribed for the patient's use at home I think it preferable to prescribe my own, called the Greenwood Atomizer, which is made of glass annealed to a toughness which resists easy breakage and can be made perfectly antiseptic by placing in boiling water, and the fluid can be easily removed.

Why should not direct medication be more frequently resorted to for the immediate effects upon the lining mucous membrane of the lower respiratory tract as well as to the upper? My experience of many cases is that most gratifying results do follow from such inhalations of finely atomized oily fluids, properly medicated. Only an oily menstruum (vaseline, alboline, or some other of the petroleum products) is practicable for the parts below the larynx, since deliquescence takes place more readily with aqueous sprays, hence its greater tendency to produce strangling.

The use of this form of spray was taken up more slowly in the east, perhaps from their idea that "no good could come out of Nazareth," the west and south having been the prime movers in its introduction. But I have recently found that the so-called vaseline sprays (which includes all that have for their basis any of the oily products of petroleum), are now being used quite extensively abroad, and in London and Paris, particularly, I find that the inhalation form of these sprays is now also resorted to in the treatment

of irritations, obstructions and inflammations of the bronchial tubes.

I have said this much on the subject of the spray because I regard it as one of our best instruments not only in curing inflammatory conditions of the upper respiratory tract, but in the treatment of the baneful results therefrom.

IMPORTANCE OF PROPER MANAGEMENT OF THIRD STAGE OF LABOR.

J. H. BRADLEY, M.D., Dublin, Ga.

Generally in this stage of labor you make your reputation or lose it.

I will relate a case: "Anna J. (colored), primipera, age 20, delivered of a healthy child; about half of the afterbirth left in, trusting to nature to use it, which she would, if the patient could last long enough. I was called as a second consultant with the attending physician; I found that she had fever 104, pulse 125, bowels swollen and painful, very nervous, eyes glassy and the odor of the discharge was the most offensive my olfactories ever came in contact with. The genitals swollen and extremely painful. The attending physician said, 'he had done all he knew,' and asked me 'to suggest something.' My only thought was to remove the remaining secundies and irrigate the uterus.' After informing the people of the condition, we gave hypodermatic of strychnine and then put her to sleep, chloroform being used. I was asked to clear out the uterus, which I did, and irrigated it with 1.2000 hot bichloride solution, followed with plain hot water. Just as I finished and commenced washing my hands, she opened her eyes, looked around and commenced gasping; I rushed to her, lowered her head and gave strychnine and nitro-glycerin and used artificial respiration, but she was beyond restoration.

I am the man that shouldered the death. I could have

done like the consultant "Number One," gave a vaginal douche and left; I could have given urine injection and got out before death, but thinking she was able, thought I could clear out the uterus at once and give her all the chances for recovery.

The cause of her death was, first: Had no physician to begin with; second, the secundies was not removed at the proper time; third, I removed them too late, the woman not being able to undergo the operation; but in my judgment 'twas the treatment. Then I took the chances, with the result of her death.

Gentlemen, my only object in reading this paper is to impress on our young brethren the importance of removing the after-birth; always remove the after-birth in one hour, preferably a half, according to conditions. Do that with strictly aseptic precautions and follow each morning and night with a vaginal douche of hot bichloride solution or any good antiseptic solution and a dose of oil and turpentine the following morning, and you will never have any bad results following a delivery.

I think if our Association could at least divide the papers, instead of all being successful ones, it would be more impressive and keep us strictly on guard, and we could certainly prevent a few mistakes.

Nothing goes like success, but a physician that delivers a woman successfully every time, requires just as much skill and judgment and as many aseptic precautions as it requires in a laparotomy.

"Any fool can use a knife,
Will you trust him to deliver your wife?
Yes, any Old Granny can deliver;
For her to perform a laparotomy would make you quiver.
The laity is generally blind,
But can never keep pace with the time."

THE CAUSE AND TREATMENT OF SOME FORMS OF HEMICRANIA.

This article is intended for married ladies. The cause of this trouble is congestion of the ovaries. This is brought about by vaginitis, leucorrhea, vulvitis or any inflammation or irritation that will produce the congestion.

Now, the most overlooked-for cause is sexual intercourse. Many a home is made gloomy, unhappy, destitute and separation by both bad health and poverty, simply because the attending physician cannot or will not impress both husband and wife the necessity of refraining from such pleasure. (I only wish I had time to have written more on the subject.)

Now the treatment is, first of all, send the lady off and keep the man at home; give her a dose of mercury, some hot antiseptic uterine injections, rest, good rich diet; any addition if case needs it, and in six weeks, if you have not waited too long to begin treatment, she will return with that happy rotund, bright, rosy face and greet you as she once did, when health was not at a premium. Home is made happy once again; but without the advice strictly adhered to, she will soon be in the same condition and speak of life as not being worth living.

Try the little suggestion, strictly adhered to, and let me hear of some home being made happy.

INFANT FEEDING.

SAMUEL A. VISANSKI, PH.G., M.D., ATLANTA, GA.

This subject is, to my mind, the most important known to medical science, and the art of infant feeding requires the greatest skill. It is most important because right here we lay the foundation of future generations. Without properly fed infants we cannot grow strong men and women; "it is the rock upon which many and many a little bark has made shipwreck." How few of us seem to realize these facts when we inquire as to how infants are fed, and how the food is prepared! Experience has taught us that there are but two ways of feeding an infant, namely, either on human milk at the breast of the mother or of a wet nurse, or upon an artificially prepared milk diet; and we have the two corresponding classes of the breast-fed and the bottle-fed baby. God in His infinite wisdom gave to the mother two glandular organs—mamæ—which secrete sterile milk, with all the properties necessary for the nutrition and growth of the infant. Happy are the little ones who belong to this class, for there is no question whatever that the natural and proper food for infants is human milk. Statistics show beyond a doubt that breast-fed babies, as a class, are larger and healthier than the bottle-fed ones, and that the mortality of them is far less. The most careful preparation can not possibly make the milk of another animal chemically identical with that of a woman, or similar in its effects on the child. Therefore, it is the duty of every healthy mother to nurse her infant, and it is still more the

duty of the attending physician to see that this method is carried out. As to the time a baby should be put to the breast, physicians differ. I make it a rule that as soon as the mother has rested sufficiently, and she and the baby have been washed, to put the little one to the breast. The natural instinct of the baby is to suck, and though there is little nourishment in the breast the first two or three days still there is a thin, yellowish, sticky fluid, looking like poorly developed milk, called colostrum. This is of a peculiar character, since besides being of a nourishing nature, it has a somewhat purgative action upon the child's bowels, and it is advisable that these be well opened early, and the blackish contents (meconium) discharged. It usually requires three or four days for the secretion of milk to become well established. (This is an important point to remember, as you will often find the primipara alarmed at not having an abundance of milk the first day.) The early sucking of the child fulfills still other purposes besides those mentioned. It both stimulates the secretion of milk and draws out the nipples into better shape for the baby's future use; it also insures proper uterine contractions. Many monthly nurses wish to feed the child during the first day or two of life with sweetened water, gruel or other substance. This is usually totally unnecessary, and often harmful. During the first six weeks of life the child should be put to the breast regularly every two or two and a half hours during the day, and from this up to the time of weaning, every three or four hours. During the night, it should be fed not more than twice. Too much stress can not be laid on the importance of regularity in nursing. If the mother nurses the child every time it cries, great harm results, as the baby's digestion is sure to suffer, and its disposition to cry to become more and more. Moreover, a baby is to a wonderful degree a "slave to bad habits;" it will make every-

one connected with it a slave to itself. It is a great mistake to suppose that every cry that stops temporarily during nursing denotes hunger; often the child is thirsty and a little water is all that is needed, and it should be given often.

Turning, then, to another very important point is the necessity of early weaning. If the mother is suffering from the drain of nursing as from general debility, consumption or other exhausting ailment, or if she should develop any severe acute disease, such as typhoid fever, pneumonia or the like, nursing the child is out of the question. It is very commonly believed that the return of the menstrual period makes nursing improper. Although you will find this occurrence very often does render the milk unfit for the child, yet this is not an invariable rule, and the mother should do nothing precipitately in the matter. After the occurrence of one monthly period there may be no reappearance of it for several months, and weaning would have been entirely unnecessary. Each case is a rule to itself, and only the effect upon the mother and baby can settle the question, even if the periods have returned regularly. Should the mother become pregnant again, the child should be weaned, for it is too great a drain upon her to sustain both, the one present and the one to come. Sometimes you find a great falling off in the quantity and quality of the milk which can not be remedied in any way, or there may be an entire or early cessation of the flow; again, the breast milk may be richer than the child can digest. Before breast feeding is abandoned on account of any defect in the amount or quality of the milk, the mother and physician should make sure that the trouble really exists, and that it cannot be remedied. The only accurate method of determining the character of the milk is, of course, to have a chemical analysis made of it. Observation, however, as to the growth of the child and if it is gaining in weight will usually suffice.

Crying is not always a symptom of insufficient food. If the child tugs long and hungrily at the breasts, and is unwilling to cease sucking after it should have finished, or if, perhaps after a period of nursing it drops the nipple with a dissatisfied cry, it is very likely that the milk is insufficient in quality. Sometimes you will notice the milk is pale and bluish, even though very abundant, showing that the richness is interfered with. I came across a case the other day where there was an almost entire cessation of the flow of milk. This was due to a very anxious mother taking little nourishment, and being up night and day with her sick child. I did not suggest weaning, but immediately put the mother on a diet of milk and cream, with the addition of Hoff's Malt and Iron. In a few days the milk returned to its normal quantity and quality, the child, in the meantime, was also placed on artificial diet. As we often find some defect in the quantity and quality of the breast milk, the question arises whether something can not be done to correct this, instead of at once subjecting the baby to the trials of artificial feeding. Modification of the amount or kind of food taken, and of the method of living and the frequency of nursing exerts a powerful influence upon the composition of the milk.

Rotch gives the following table for modifying breast milk:

To increase the total quantity:—

Increase the liquids in the diet.

To decrease total quantity:—

Decrease the liquids in the diet.

To increase the total solids:—

Shorten nursing intervals.

Decrease exercise.

Decrease the liquids in the diet.

To decrease the total solids:—

Lengthen nursing intervals.

Increase exercise.

Increase the liquids in the diet.

To increase the fat:—

Increase the meat in diet.

To decrease the fat:—

Decrease the meat in the diet.

To increase albuminoids:—

Decrease the exercise.

To decrease the albuminoids:—

Increase the exercise to the limit of fatigue.

Should the mother find it necessary to abandon nursing, she does not necessarily have to wean the baby, since she may employ a wet nurse. There is no question that the milk of a good wet nurse is greatly to be preferred to artificial feeding, as you only exchange the milk of one for that of the other. Still, there are many objections to the employment of a wet nurse, and it is often impossible to obtain a suitable one. Nevertheless in the case of an extremely delicate child, the employment of a wet nurse often is the baby's only chance of life. I will not dwell on the method of selecting a wet nurse, as it is, no doubt, familiar to every physician. The principal point to remember is to see that they are free from specific or tubercular taint.

ARTIFICIAL FEEDING.

This brings us to the consideration of the very complicated subject of artificial feeding, one of the most perplexing problems which can present itself to the combined study of mother, nurse and physician. While science has done much for surgery and other branches of medicine, the arti-

ficial feeding of babies is still in the background, no two physicians agreeing on this most important subject, and for this very disagreement, many children are now lying under the sod. It is amusing at times when getting a history of a case where a child is fed on artificial food, to hear the mother say, "How doctors do differ! Have had five doctors with this child and each one orders a different food. Dr. A. says preparation No. 1 will not agree with my child; Dr. B. says take it off, Dr. A's a fool, or it will starve to death, and so on." Is it a wonder the layman has begun to look upon us with suspicion? It is well, however, that we do differ at times as to diagnosis and treatment, but we often "agree to disagree" when there is no need for it. To feed a child artificially requires more skill than to perform the operation for appendicitis, yet you will see journals and text-books filled with articles as to the best method of performing this operation; how few articles we see on infant feeding! and even then little attention is paid to them. Society has done much for the bottle-fed baby, from the fact that so few mothers of to-day will nurse their infants, preferring the ballroom and club, thereby placing a greater number of infants on artificial food, and naturally a greater number of physicians have to direct the preparation of same. In endeavoring to feed a baby properly, we must bear in mind three important factors:

1. The quantity of the food.
2. The quality of the food.
3. The individual peculiarities of the child.

One of the most frequent mistakes made in feeding a baby is that of giving it a much greater quantity of food than it can possibly assimilate, with the result that it either vomits it, or passes it through the bowels in an indigested state. A new born baby's stomach holds without distention only about one ounce (two tablespoonfuls). How foolish, then, to direct to feed the new born child from a full sized

nursing bottle and allow it to gorge itself with all it will take!

(2) The quality of the food. Regarding the character of food to be given a child, that is, its quality,—it is evident that the more closely the food resembles mother's milk, the more likely it is to agree with the child. Chemistry has almost solved the problem of artificial feeding by giving a thorough analysis of woman's milk and cow's milk, which should be familiar to every physician.

Rotch's table gives:

Woman's Milk—	Cow's Milk—
Reaction, alkaline.	Reaction, acid.
Bacteria, none.	Bacteria, present.
Water, 87-88 per cent.	Water, 86-87 per cent.
Total solids, 12.13 per cent.	Total solids, 13.14 per cent.
Fat, 4 per cent.	Fat, 4 per cent.
Albuminoids, 1 per cent.	Albuminoids, 4 per cent.
Milk sugar, 7 per cent.	Milk sugar, 4.5 per cent.
Ash, 0.2 per cent.	Ash, 0.7 per cent.

Besides these characteristics, woman's milk has a specific gravity of about 1031, while that of cow's milk, that of about 1029. My experience has taught me that modified cow's milk is the ideal artificial food for feeding infants, and a point that I want to make clear is this,—it is not so much how you prepare the food as it is what you prepare. For fear that this broad assertion might be misconstrued I will explain further. While I prefer and use sterilized milk for infants, the point is this: If you have the milk, cream, water, sugar, etc., in proper proportions, whether you sterilize, Pasteurize, or give the food raw, nine times out of ten it will agree with the child. Sterilization only destroys the bacteria, and keeps the milk sweet for a longer time,—it is only a process of steam heating. "And here's the rub." By what method are we to determine the proper ingredients

for artificial feeding? We must have a starting point, and then modify to suit each individual taste, as you will find every infant "a law unto itself." Jacobi says, "an infant's stomach should not be made a test tube"; I say it is a great experimental station, provided the experiments do not last too long. The method I have adopted of feeding babies is that of Professor Siebert, and that is, to feed according to the weight, and not the age of the child. There is a good reason for this: a large baby requires more food than a small one, just as a large horse requires more food than a small horse, and it is on this principle we should feed infants. To illustrate, a baby at the age of three months might weigh eighteen pounds, while the average is twelve and one-fourth pounds. If you were to direct the preparation for the three months old baby according to its age, the formula would be for a baby weighing twelve and one-fourth pounds, therefore five and three-fourths pounds of the baby would be insufficiently nourished. On the other hand, a child at the age of three months weighing eighteen pounds can be placed on the same formula as the average baby of eight months weighing eighteen pounds.

HOW TO PREPARE THE FOOD.

Having adopted Siebert's method of feeding by weight and not the age of the child, we will take, as an example, the child weighing twelve pounds. Referring to Siebert's chart, we find, size of bottle, five ounces, milk two and a half ounces, water or gruel two and a half ounces, sugar one and one-half dr., one bottle every two and a half hours. In twenty-four hours, seven bottles; six a. m. to six p. m., five bottles; six p. m. to six a. m., two bottles.

Directions.—Make use only of fresh bottled milk brought to the house every morning (including Sunday), early, by some reliable milkman. Never use milk taken from large can, but have it delivered in bottles. Take the

upper half of a quart bottle of milk (or when necessary of two), so as to include all of the cream, and pour into a clean pitcher, dissolve the sugar of milk, add a pinch of salt, if you like, and then filter through a small layer of clean absorbent cotton placed in a funnel, directly into the nursing bottles up to the milk line.

(2) Filtration of Milk.—This filtration of milk and sugar water through a small layer of absorbent cotton, as devised by Dr. A. Seibert (Archives of Pediatrics, July, 1894), removes all gross impurities from these fluids, and seven-eighths of the bacteria from the milk. The amount of cream in the milk is not diminished by this filtration; filth, manure, cow's hair, dust, scales and bacteria (germs of disease) are present in all milk, even when delivered fresh and in bottles. The aluminum milk filter devised by Siebert is very convenient, and sold at 50 cents each, the cotton filter discs 25 cents per box.

(3) How to Sterilize.—Arnold's sterilizer is the best on the market, and comes in different sizes. See that the bottles are thoroughly cleaned, and after having filtered your milk solution into the nursing bottles, place a piece of clean raw cotton in the mouth of each bottle; pour hot water into the kettle up to the ridge, then place lid on top and steam over a brisk fire, according to the season, from May 1st to November 1st, thirty minutes, and from November 1st to May 1st, twenty minutes. Directly after feeding rinse the bottles with clear warm water, and then fill them to the top with soap water, made with green caustic soap (or soft soap). The bottles remain filled with soap water until evening, when they are cleansed best by soap and water and absorbent cotton wound around a stiff wire. Never use brushes. Remnants of milk inside the bottles are best seen by holding them in front of a strong light, and must be carefully removed. Nipples should be placed in weak soda solution and rinsed in clear water several times. If you find the

child is constipated add a little cream to each bottle, just before placing the nipple on, and heat to 90 degrees. Never let the baby sleep with nipple in its mouth. It is not only a bad habit, but has a tendency to produce mouth-breathing.

A very convenient chart for directing the feeding of an infant is the one devised by myself.

CHART FOR FEEDING AN INFANT.

Devised by Samuel A. Visanski, Ph.G., M.D , Atlanta, Ga.

Name .....
Weight .....
Age .....
Milk .....
Water .....
Cream .....
Sugar of Milk .....
Sugar White .....
Salt .....
Number of Bottles .....
Size of Bottle .....
One bottle every.....hours
.....bottles 6 a. m. to 6 p. m.
.....bottles 6 p. m. to 6 a. m.
Nurse .....
Date .....

It is of no advantage to have the milk from one cow; it is, in fact, a distinct disadvantage, for the great difference which exists between the milk of different cows makes it impossible to prepare a proper imitation of mother's milk according to any fixed rules unless you should have the individual cow's milk analyzed in order to determine in just what way the mixture should be made. Besides this the milk of any cow is subject to variations from time to time,

depending upon the nature of the food given it, the health of the animal, and other factors. The selling of milk should be under the direct supervision of the respective Boards of Health and each bottle should bear a label "Certified Milk," with official signature. I am glad to see a move in this direction in the different cities, and it would not be a bad idea to extend to the smaller towns. Owing to the rigid inspection of milk in New York City people dwelling in tenement houses can secure as pure milk as those residing in fashionable Fifth avenue. What a God-send to poor babies!

Thickening Substances.—Sometimes we find it necessary to add thickening substances, such as barley-water, gelatine, etc. They act purely mechanically, by getting, as it were, between the particles of casein during coagulation, preventing their running together and forming large compact masses. Barley-water is made by adding a tablespoonful of "pearl barley" to a quart of water, boiling for fifteen minutes; strain and add water sufficient to make the quart. If an alkali is necessary to add to the milk use lime in the shape of lime-water, or, preferably, the saccharated solution of lime, five to fifteen drops of the latter, can be added to each bottle.

Preparations on the Market.—As to the preparations on the market much could be written. Having stated fully my views as to the very best method of feeding infants, I say, use them if you like, but you are not imitating nature. There is not a text-book that will advise them. Unfortunately they often agree with the infant, and sometimes they grow fat, but not strong, and if you watch the child's future you will find they do not have the power of resistance necessary to overcome disease. We all agree that condensed milk will make fat babies; but I compare the fat of a condensed milk baby to that of the beer drinker—it is soft, flabby, unnatural. Unless you understand how to feed infants you

will be unable to treat such cases as marasmas, rickets, scurvy, diarrheas, etc. Beginning with marasmus, Louis Starr says: "The chief etiological factor is diet. It occurs both in breast-fed babies and those brought up by hand, being in either case due to insufficient nourishment. The child wastes because he is starved." As I have already stated, food can be insufficient in two ways; first, when it is supplied in amounts too limited to meet the demands of the system. Second, when it contains a minimum of the elements essential to nutrition or presents them in a form ill-adapted to the feeble digestive powers of infancy.

Infantile Scurvy.—William Perry Northrop of New York, says: "The most frequent direct cause is prolonged feeding upon patent prepared foods and canned condensed milk, or, to state this point more directly, persistent deprivation of fresh food." He further states, "there is no evidence that sterilized milk has caused scurvy, nor any reason to believe that Pasteurizing milk predisposes thereto."

Rachitis.—J. Lewis Smith of New York, says: "Besides the antihygienic conditions which give rise to rachitis, the most common and potent appears to be the use of food not sufficiently nutritious, or if nutritious, not suited to the age and digestive powers of the child. The use of thin and poor breast milk and artificial food of poor quality, or not suitable for the stage of growth and development, is a common cause of rachitis." He says further: "I might relate cases of rachitis occurring during the use of certain proprietary or commercial foods. I have examined the analysis of these foods made by Professor Leeds in order to determine what ingredient is lacking, and they are found to contain a considerably smaller percentage of fat than occurs in human milk. Too little fat in the food may, as Cheedle observes, be one of the chief dietetic causes of rachitis. It is an interesting fact and one that throws light on the dietetic cause of

rachitis that it does not occur in Japan. Physicians who have had abundant opportunity to observe the diseases of the Japanese state that they have never seen or heard of a case among them, and Remy says that the Japanese women have a remarkable abundance of milk, and that they suckle their young until the age of five or six years, but their children are also given other foods after the first year. Remy's explanation of the immunity of the Japanese from rachitis is as follows: The Japanese have always eaten plentifully of fat and oils of fishes, the blubber of the whale, the eel and loach, especially.

REPORTS OF CASES.

To demonstrate my method of feeding infants, I will report three cases:

(1) Louis S., age three months, weight eighteen pounds, a perfect specimen of babyhood; his mother was suffering with a severe facial neuralgia and acute gastritis, unable to nurse the child. Louis was given modified sterilized cow's milk, according to Siebert's chart (feeding by weight), and the milk was entirely digested. As I stated before, the formula was the same as the average child of eight months. As soon as the mother recovered the child was again put to the breast.

(2) Frederick S., age ten months, was brought to me from Selma, Ala. At birth only weighed six pounds, always had a weak digestion. Had gone through an attack of pneumonia and whooping-cough. When I first saw the child it was extremely emaciated, head of a peculiar shape, typical of "marasmus." Skin harsh to the touch, and of a light brown hue. Urinated every few minutes and stools of a green color with foul odor and very frequent. On inquiry from the mother I learned that the child was fed on condensed milk and barley-water, and it required two bottle-

fuls at each nursing to satisfy the baby. Is it a wonder the child urinated so frequently? The child weighed only eleven pounds, and I gave it the modified sterilized cow's milk with barley-water, according to Siebert's chart, it being equal to the formula of the child age three months. To each bottle of milk I added ten gtts. ess. pepsin, ten gtts. Taka Diatase, aq. menth. pip. 1 drachm. The milk was perfectly digested, and in forty-eight hours the stools became normal in color, odor and frequency; amount of urine also diminished. In a few weeks, the child began to take on new life; the complexion cleared up, he gained in weight each week and at present weighs 24 pounds. The flesh is firm, not flabby, has cut several teeth with no disorder of dentition. "Fritz," as we call him, is now a fine specimen of a baby boy.

(3) Janet W., age five months. History: At birth, weighed about eight and a half pounds. At the age of six weeks mother noticed child did not digest the breast milk; passed mucus, would fret all day, skin looked sallow. The child was treated from time to time; sometimes better, sometimes worse. Took her to Macon (home of mother), thinking perhaps the change would benefit the child, but it did not. Physicians there advised the mother to take the baby to Gainesville, which she did, but the child was not benefited. The child had taken breast milk, malted milk, Mellin's Food, condensed milk, etc. About September 15th, Mrs. W. returned to the city, bringing the child with her. On September 18th was called to see the girl. Found her very emaciated, almost a skeleton, bowels loose, of a greenish color, loaded with mucus, odor very offensive, very fretful, skin harsh and sallow. She weighed only eleven pounds. After taking her off of all manner of food except the barley-water and "toddy," cleansing the gastro-intestinal tract for two or three days, I put her on the modified sterilized milk and barley-water, according to Siebert's chart.

To each bottle of milk I added ten drops ess. pepsin, ten drops Liq. Taka Diastase, aq. menth. pip. one drachm. The milk was thoroughly digested, stools became normal in color and frequency, the child slept like all healthy children, fretting was a thing of the past. At first gained three-quarters of a pound a week and sometimes one pound a week. As she gained in weight the strength of the milk was increased and a little fresh cream added to each bottle. The girl is now in perfect condition, has cut six or eight teeth without any disorder, and at the age of one year, weighs twenty-one pounds.

BOTTLE-FED BABIES.

WM. Z. HOLLIDAY, M.D., Augusta, Ga.

One of the evidences of our progress as a nation is the increasing importance that is being attached to the care of man in his state of greatest helplessness. The most casual reader, whether he be layman or physician, cannot fail to be deeply impressed by a glance at the vital statistics of early life. Coming into this world and facing the odds there are against us is indeed a serious undertaking, especially when we remember that so many must succumb before reaching the first mile-post on the journey. Our prospects of continuing in the race of life are not much brightened until we are past the age of five. In his excellent text-book on Diseases of Children, Holt says "that three important factors are to be taken into consideration when an infant is to be reared; namely; heredity, environment and food." I would not deal lightly with either of these essentials, but I presume few of you will take issue with the statement that to us, as medical men, the question of how best to feed the baby overshadows the rest. If by virtue of heredity, habit and inclination our mothers attain that degree of physical perfection intended by an all-wise Creator, then the time I will consume would be better devoted to something else.

Under such circumstances there would be a natural and suitable supply at Nature's fountain, the natural, the only ideal food for babies. It is a fact, however, that there is a growing disinclination on the part of mothers (be it said to their shame) to nurse their own offspring. It is equally

true that there is an increasing disability to discharge this duty, even when willing to do so.

Prof. J. Lewis Smith, writing in 1881, says: "One-tenth of all the children born die during the first month." Since, then, there is so much danger of loss of life, and more especially since such a large percentage of deaths during this period are due to errors of diet and consequent disease, we are brought face to face with the question or errors in infant-feeding as the cause of the alarming mortality of this period of life. It is only during the past decade or two that the subject of infant-feeding has assumed proportions at all adequate to its importance. It is now almost universally conceded that the science of feeding is the very foundation of pediatrics. By the term bottle-fed babies, we mean that important class of unfortunate little individuals who are deprived of the natural supply either wholly or in part. If a mother is in reasonably good health, and can supply even a small part of the nutriment her child requires, she should supply just that much. If on this her child does no grow or thrive, then it must be supplemented.

SOME CAUSES FOR ARTIFICIAL FEEDING.

First, the death of the mother at or about the time of the child's birth. Second, a total or partial failure of the mammary secretion. Third, the existence of constitutional debility or hereditary diseases—especially syphilis or tuberculosis.

When artificial feeding is to begin we should look about us and see with what we have to deal. In order to help us estimate the young hopeful properly, we must estimate his avoirdupois—weigh the baby. Since this is the period of greatest activity in physical development, there is no other means by which we can accurately determine whether or not there is a proper growth. Weighing should not only be done carefully but regularly, at least once a week, and a careful record made for future reference. A strong, well

child should gain in weight from four ounces to a pound and a half per week.

How shall we begin the process of artificial feeding? The answer is easy: Study nature and imitate her as closely as possible.

When we look at mother's milk we find that we have an opaque fluid, having a slightly alkaline reaction, a specific gravity varying from 1028 to 1033; that it is composed of thirteen parts of solids and eighty-seven parts of water. A further analysis will show that the solids are made up of:

Fat, 4.

Carbohydrates,7.

Proteids, 1.50

Salts, .20.

Water, 87.30.

We must study each of these constituents in order to determine its importance in the combination. The fats encourage the growth of the bones, nerves, furnish animal heat and are also devoted to storing up fats in the body. The carbohydrates have two important functions—the production of animal heat and fat. The proteids stimulate the development of the tissues generally, the cells of the body, the blood, muscles and the organs of the body. The function of the salts is to stimulate the growth of bone. A great many attempts have been made by chemists to establish a fixed formula for normal mother's milk; the result has been to prove that there is no such thing. Not only does the milk of different mothers vary very much, but also the milk of the same mother has been shown to vary several times during the course of a single day. The formula which I have just given is one that is pretty generally accepted as a fair average of a good sample of mother's milk. Having learned the value of each of the constituents, the fats, carbohydrates and proteids, more especially, we also learn that the proteids (containing the casein), existing in the small-

est per cent. of the three, are the most important, because it is from these that the greatest volume of the body, and that which must perform its most active functions, is made up.

Until a few years ago there was only one individual that had made any special effort toward anything except empyricism in the copying of mother's milk as a guide to success in the artificial feeding of infants. I allude to the efforts of the senior Dr. Meigs of Philadelphia. He ascertained that a mixture of cow's milk with cream and sugar, diluted with lime-water, made an excellent substitute for mother's milk This mixture, under the name of "Meig's Cream Mixture," attained great popularity, and was known far and wide as the most successful that had been devised up to that time.

It was a good many years later that his son, employing the same mixture in his own practice, discovered, by a chemical analysis, that its composition was almost absolutely identical with that of mother's milk. It was some years later before Prof. Roteh, of Harvard University, working with the co-operation of some public-spirited and wealthy gentlemen of Boston, established what was known as the Walker-Gordon Laboratory. The object of the laboratory was to break up and recompose cow's milk so as to make it conform to the formula of mother's milk, and it has since been the basis of all scientific modification of infant foods from cow's milk.

There are very many reasons why cow's milk should be adopted as the artificial food for bottle-fed babies; not because it is more nearly like mother's milk than that of some other animals, but because of the fact that it can be had more conveniently at less expense, and everywhere. Since, then, we have determined to modify cow's milk, the question naturally arises as to whether any particular species of cows should be employed for this purpose. Experience has taught that some cows—the Jerseys more particularly—

furnish a milk so rich in fats that it is more difficult to manipulate so as to make it as easily assimilable as that of mother's milk. There are, however, some other considerations that are extremely important; the first of these is the healthfulness of the cow and the uniformity and cleanliness of the milk as it is furnished to us. It is a fact well known that cows are subject to tuberculosis and to some other diseases that are communicable through the milk. Of course the milk from such animals is highly objectionable, and should not be employed under any circumstances. The milk should be of as uniform quality as it is possible to obtain. It was formerly thought that this object was best attained by employing the milk of a single cow; it is now a well-known fact, however, that cow's milk, like woman's milk, is subject to frequent and wide variations, and that the best means to employ for the procuring of a uniform sample is not to employ that from one but rather from many cows. You will readily understand that this is true, if you bear in mind the fact that the indisposition of a single cow, which would affect the quality of her milk, would not be nearly so liable to affect unpleasantly the baby's nutrition if it were diluted by the addition of good milk from a dozen or more perfectly healthy cows. Since these changes are constantly going on in all herds of cattle, it is decidedly preferable to employ the milk obtained from a dairy to using that which would be gotten from the cow owned by the family.

After its introduction the methods employed by Prof. Rotch soon gained wide popularity, and our medical journals were constantly filled with reports of the use of this method in all parts of the country. In quite a number of our large cities Walker-Gordon laboratories were soon established, and it became as popular and as common to write prescriptions for modified milk from these laboratories as it was to write prescriptions for medicines to be compounded

by the pharmacists. The teachers in our medical centers taught that it was important that we should learn to think and to write in percentages as fluently as we were supposed to write the characters of an apothecary's table. In these cities where the laboratories have been established the supply of milk was furnished by dairies situated some distance away. Their methods of handling milk were to exercise as great care as they could, and to send it out not only in a modified condition, but as nearly sterile as it was possible to have it.

I will not consume your time by a repetition of the prescriptions that have been regarded as suitable for children of different ages and conditions. I desire, however, to make at this point, comparisons between the milk of cows and that of mothers in order that we may understand what modification is necessary in order to make the substitute approximate that which we are endeavoring to copy.

Woman's Milk.	Cow's Milk.
Fat, 4	Fat, 3.50
Sugar, 7.	Sugar, 4.30.
Proteids, 1.50.	Proteids, 4.
Salts, .20.	Salts, .70.
Water, 87.30.	Water, 87.50

Of these constituents there are only three that will attract any particular attention on our part in the process of modification, because the water exists in the same proportion in each, and the salts of cow's milk being three times the volume of those in mother's milk, when the other constituents have been properly modified, they will be found to exist in about the correct proportion. Cow's milk contains nearly three times as much of the proteids, and a little more than half as much sugar; not only is it true that the proteids exist in larger proportion in cow's milk, but they are also more difficult to manage. The reason of this is that they

are not acted upon so readily by the rennet found in the baby's stomach; consequently they tend to form curds which are not so flocculent and easily assimilated as those produced by the action of the same constituent of mother's milk. It is also true that for the same reason the baby's stomach is capable of taking care of a smaller volume.

Therefore, in the beginning, it is well in your attempt to copy nature to add a smaller percentage of proteids. Not many infants are capable of digesting at first more than one per cent. of proteids of cow's milk, and in case this is found to disagree even a smaller percentage must be given until the system has become accustomed to the digestion, when the volume may be increased to the normal amount. So much difficulty has been experienced in the manipulation of the proteids of milk that efforts have been made to substitute therefor proteids of vegetable origin. This effort has not been satisfactory, for while it is found that the child may do well for a short time on vegetable proteids, it is not long before it is discovered that they do not thrive, and a return must be made to those of cow's milk.

The sugar found in mother's milk is lactose, and exists in larger proportions than we find the same sugar in cow's milk; therefore, this deficiency must be supplemented. It is usually considered better in substitute feeding to employ milk sugar for the purpose of increasing the volume of the carbohydrates. This, however, is not absolutely essential for very many physicians have regularly employed cane-sugar, and found that the results were entirely satisfactory. Let us remember that the object of the addition of sugar to cow's milk is not simply to sweeten but to furnish one of the important constituents in that proportion which nature intended that the baby should have it. Thus far I have said nothing of the functions of the fat, and the proper method of its manipulation. The fats of cow's milk exist in less volume than in mother's milk; therefore, the volume

must be increased. Nature has intended that the fat should exist not only in that proportion which is essential for performing its functions in the part of nutrition, but evidently intended that it should also perform the function of a lubricant because of the fact that in well children a certain percentage is constantly passed unchanged in the stools. It is also true that a deficiency of fat in the infant's food is one of the most fruitful causes of constipation.

Having briefly reviewed the process of analysis and recomposition of cow's milk, as modified in the laboratory, what shall we next do to ascertain whether this milk, which is sent forth in a state of physical perfection, is accomplishing its mission? I told you, in the beginning, it was important that the baby should be weighed. If your baby is thriving upon his diet, he is increasing in weight, is good-natured, and shows general signs of physical thrift. On the other hand, if there is no satisfactory increasing weight, if your baby is fretful, sleepless, emaciated, pale, crying a great deal, you may be sure that something is wrong. Again, if there are frequent paroxysms of colic, diarrhea, frequent crying spells, you have still other symptoms demanding a change.

Laboratory methods teach us, among many important lessons, this analytical plan of breaking up into composite elements and building up again. It is certainly a step in the right direction, and when we have employed it, if the results are not those sought we will do well to investigate our technique to determine whether or not we have done our work well. We must produce a substitute as the chemist does in the laboratory, furnishing all the elements combined in their right proportions; else we fail to build up a strong, perfect baby. After so much handling of the mifk we have modified, it is hardly to be expected that it wil be sterile; therefore, it is customary to sterilize or Pasteurize it, not because this adds anything, but because it prevents the

micro-organisms with which the milk is teeming from doing hurt. Milk is, as usually handled, a great culture medium for bacteria, most of which are not hurtful, but some of them are, and it is not uncommon to convey typhoid fever, diphtheria, and some other diseases in this way.

Most bacteria, including those just mentioned, are destroyed by a temperature of 167 degrees for fifteen to thirty minutes. The writer believes that milk should not require sterilizing because the process is hurtful to its properties as a nutrient; however, while present methods are in vogue, we will have to adopt it as the lesser of two evils.

Laboratory methods are convenient, scientific and all that, but since these institutions are not accessible to the vast majority of the profession, what are we, who are deprived of its benefits, to do? We can adopt the plan of Meigs and modify the milk at home. It is my opinion that if we can combine the teachings of Meigs and the laboratory we have a practical, almost an ideal, method of modifying cow's milk. There are several of our best men, including Jacobi, Chapin and others, that have never accepted the idea that strict adherence to percentage feeding is essential, but have chosen rather to accept the laboratory teachings as a pointer to the path the general direction of which we should follow.

I assert most emphatically that cow's milk can be suitably modified at home, and that the process is very simple. We have, as we have already learned, only three of the constituents of milk to deal with, and only one of these likely to be troublesome, namely, the proteids. These require dilution, the sugar and cream to be increased, the milk to be rendered alkaline and kept sterile. I use the words "kept sterile" advisedly, for it is unquestionably true that there is no more reason why the secretions from the mammary glands of the cow should be teeming with bacteria than that the same should be true of mother's milk. When we have learned to properly prepare ourselves

and the cow for the operation of milking, and when the operation itself has been performed under as strict asepsis as is employed in a surgical operation, then, and then only, will we be able to dispense with the hurtful process of cooking the baby's milk. When we have procured clean milk, the process of home modification will be even simpler than it is at the present time. It will consist of nothing more than the breaking up and recomposing the cow's milk in a humanized form, so as to make it meet the requirements of the baby's constitution.

For some years past I have employed the plan of diluting the top milk from the cans furnished us by the dairymen, adding sugar, lime-water and sterilizing, very satisfactorily. It is easy to carry out this method with little or no machinery at all. In a great many cases I have required the mother or nurse, after preparing the milk according to a written prescription, to introduce the same into a simple double boiler and heat to a temperature of 167 degrees for twenty minutes. This method I find is open to one single objection, namely, that the milk must again be handled in order to get it in the feeding-bottle; therefore, I consider it a better plan, after having the milk modified, to introduce it into some simple form of sterilizer where it shall remain until consumed. It does not make a great amount of difference whose sterilizer you employ; it is a good idea to learn to use one well, and stick to that. I have found the one devised by Seibert, of New York, to possess some points of merit not found in others. This is shown by the pains he has taken to work out and record, upon the bottles, according to laboratory methods, almost all the information that is necessary for the successful operation of the appliance. I have brought with me one of the bottles from this sterilizer. I call your attention to the fact that it has this line indicating the point to which it is necessary that the top milk already referred to should come; then by diluting

with your solution of milk-sugar, lime-water, or whatever else it may be necessary to employ, you will observe that the process is so simple that any person of ordinary intelligence must operate it successfully. In fact, it is so nearly perfect in its general arrangement that I have seen fit to denominate it the "Stem-winder Sterilizer."

At St. Petersburg, careful studies were made some years ago to determine the proper quantity of food required for the feeding of infants of different ages. The results proved that the weight and not the age of the child determined its gastric capacity. This, roughly speaking, was found to be one one-hundredth (1-100) of the initial weight, to be increased one gram for each day's increase in age.

FREQUENCY OF FEEDING.

Very young babies should be fed regularly every two hours from 5 a. m. to 10 p. m., and not more than once or twice after the last named hour. After two months the intervals should be increased to two and a half hours; at four months, to three hours, and so on till by the end of the first year not more than six feedings are necessary. It is important that nursing habits should be established very early. Mothers frequently object to waking the baby to be fed. It is important to insist that this shall be done, because the baby's stomach has a very limited capacity and requires just so much time for the digestion of its milk. With a little pains taken at the beginning, it is only a short time before nursing habits are established and the baby will not only learn to wake up at the right time, but having its meal, will return to its slumbers with very little interruption.

I have told you that cow's milk could, and should be, procured in a condition more nearly fit for infant-feeding by virtue of its purity, than we have been able to get it in the past. I have been watching, with keen interest, little intimations that have been made along this line for some

months past. In Chicago a plan has been adopted under the direction of the Trinity Diet Kitchen for Infants for procuring milk, reports from which seem to indicate that its purposes will be accomplished. I quote from an article by Dr. George Thomas Palmer, in the Philadelphia Medical Examiner: "Trinity Diet Kitchen for Infants, a milk charity in the poor district of Chicago, was opened with the idea of supplying a pure, modified cow's milk to be distributed without any attempt at sterilization. During the past summer we have carried out this plan, and, although the infant mortality in this city has been very high, and the weather intensely hot (one month of the hottest weather ever recorded by the Weather Bureau) we have had a mortality of something less than one per cent. We have never given out one ounce of either sterilized or Pasteurized milk, and we have been so gratified with our results that we have no disposition to do so.

It may be further stated that we have had almost no complaint of the milk souring, although our clientele has been the poor and their hygienic surroundings exceedingly bad. We have merely taken the precaution to have everything coming in contact with the milk perfectly sterile, and of packing each supply with a liberal quantity of ice before permitting it to go out. The amount of ice given to each child has been ample to keep the food cold and sweet for the greater part of the day, and instructions are invariably given that the ice be replenished when it runs low. Our success in feeding with raw milk, in unsanitary surroundings, I believe to be due, first to the unvarying purity of the milk; second, to the care given the milk in our kitchen. The rigid instructions given the parents in regard to handling the milk, regularity of feeding, and absolute cleanliness has also been a factor. The milking is done at 3 in the morning and 3 in the afternoon, in stables with cement floors, so slanted as to permit thorough scrubbing, which is

done daily. The milkers are clothed in white, clean suits, and use buckets which are covered with a cap, holding in place two thicknesses of sterilized gauze between which is placed a thick layer of absorbent cotton. The milk passes through this gauze and cotton before reaching the pail. The udder-washers precede the milkers and thoroughly cleanse the udders. The milker then draws a considerable amount of milk from each quarter and puts it in a pail for disposal. He then milks through strainer; when his bucket is full, empties the milk into a sterile can in which process it is again strained. These cans are taken up and reach the dairy within five minutes after milking." The milk thus procured is subjected to the usual laboratory methods of modification before it is sent out.

In conclusion, I wish to report two or three cases of babies fed on home modified milk to illustrate the methods employed in my practice:

No. 1.—L. S., aged six weeks, mother died of tuberculosis at birth; baby came to me from its home in North Carolina, accompanied by the wet nurse, who had cared for it since the death of the mother. Nurse is strong and healthy; has splendid baby of her own, which is cared for largely by artificial milk; still, the orphan baby does not thrive. After watching her for some time, it was discovered that the nurse's habits were bad, especially in that she was addicted to drink. Under these circumstances, the nurse was discharged and dependence was placed upon modified cow's milk instead. After about two weeks the baby began to improve, grew rapidly from the end of the second to the sixth month. At this time there was a mild gastro-enteritis; this lasted two weeks; after which the baby was well again, and continued to take the modified milk till weaned. At period of weaning she was an uncommonly strong and well developed little girl.

No. 2.—S. X., son of good, strong mother. Not very strong at birth. Soon got all right, and did well until third month. At this time mother, growing very stout, is failing in quantity and quality of milk. Baby put on cow's milk, modified at home, and sterilized in a simple boiler. Baby increased rapidly in weight; doing well from the first. So well did this baby thrive on its food that it was not necessary to visit him professionally from the fourth till the tenth month; at this time there was a slight indisposition which was easily corrected by a little modification in the milk, after which the baby had no more trouble during the nursing period.

No. 3.—T. H., aged five months; mother is a pale, anaemic woman, furnishing a small supply of poor milk upon which the baby fed for the first two months. At this time another physician who prescribed for the baby put it on some form of shop food, which it continued to take for two months. On this the baby did not thrive. I first saw this child at five months. Baby pale, flabby, the process athrepsia being already established. Baby put on cow's milk, suitably modified at home, and sterilized in Seibert's sterilizer. Baby began to increase in weight, and to grow strong from the beginning. This continued from the fifth to the eleventh month. At this time, it being very hot in the city, baby went with its mother on a visit in the country. At the earnest solicitation of the relatives baby was given solid food. In a week's time baby returned to the city with acute gastro-enteritis, which lasted for more than two months, making it necessary to resort to wet nursing, and to return to just such methods as would have been employed had this child been only two months old. Baby went through very slow and tedious convalescence, after which the former vigor was regained. The baby is now a year and a half old, has been weaned, and seems in most excellent condition for the approaching second summer.

MEDICAL SUPERVISION OF SCHOOLS AND SCHOOL CHILDREN.

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Medical science has no higher aim, the physician could have no nobler ambition, than the prevention of disease. The heart of every true physician swells with pride when he feels within his own consciousness that he has prevented suffering; and how much greater is this when he can look his fellow man in the face and know that that man's physical well-being since childhood has rested with him, and that he has steered him clear of the pitfalls of disease, deformity and suffering, and from the puny child been instrumental in developing a physically perfect man! Nor is this a mere dream, but an actual possibility—an actual accomplishment in the life of every true physician.

The baby at its mother's breast, so long as it remains well and gives no trouble, comes not under our observation. And generations will have passed ere the government, state or national, will dare interfere in the management of the nursery. Then our first approach to the child as public servant and benefactor must be made in the schoolroom—preferably the kindergarten.

Is there a physician in Georgia who would not gladly give his services to the school of his neighborhood, regulate its hygiene and advise its teacher? And in return he should have the right to supervise the whole school—its buildings—its hours of study—and have an oversight of the individual child. The building should be warm, dry, well

lighted and well ventilated. The best temperature for study has been proven to be 69 degrees F., and each hundred-weight of living humanity requires for perfect health 2,000 cubic feet of air changed hourly. Floating dust must be avoided; wet clothing and draughts not allowed; seats and desk adjusted to each child to avoid curvatures and other skeletal deformities; habit positions must be noted and corrected.

The personal cleanliness of children is one of the teacher's greatest cares. This belongs more strictly to the home, but we must remember that these children's mothers had not the advantages of medical supervision while in school, therefore can not be expected to know how to deal best, hygienically speaking, with children of their own; and it is by educating those now growing up that we can obtain the proper co-operation, at home, with this greatest of public benefactions.

Every school should have bathing facilities, for by personal cleanliness we avoid the great majority of skin diseases; and in the cultivation of habits of neatness we grant immunity from many infectious troubles later in life.

Boys should be questioned and examined, relative to habits, smoking and masturbation being the two most baneful of all habits. It is estimated that one tenth of male vitality is wasted in masturbation; a great deal of this could be prevented by tactful management. Both these habits are infectious—insidiously so. No boy would take up smoking were he not taught. We know that all animals masturbate, with the possible exception of the lion, but even in boys it could be limited to within harmless proportions by the right teaching of the intelligent physician.

Tuberculosis is very prevalent among children, and no tuberculous child should be allowed, without precautions, to mix indiscriminately with others.

The so-called children's diseases are almost always spread

through the media of the school. The school physician here finds one of his most useful fields, in early detecting, isolating and thus stamping out incipient epidemics.

No child who suffers from any cause whatever that hinders its work should be allowed to remain in the schoolroom, for that child will be an idler, and a focus of detraction from their studies for the other children.

This brings us to the branch of our subject of the highest importance, to which we should address ourselves—mental peculiarities—slight obliquities, that stamp the child as odd among its fellows. These must be noted, studied, and as far as possible corrected. It is such a crying injustice to a child to allow it to carry a mental bias through its school life—perhaps laughed at, scorned and humiliated by its fellows to the point of half desperation, the school conditions practically destroying its future, whereas it ought to have been the means of upbuilding and strengthening its mind for life's works and enjoyments. What community has not one or more men to whom friends point with rather a sneer and say, "I was in school with that fellow; he always was odd." Intelligent care would possibly have obliterated that oddness and put him on a par with his fellows.

The writer, a year or two since, was invited to go through the Springfield (Mass.) public schools and assist in classifying 10,500 children found therein. Nine and four-tenths per cent. of all the children were found unfitted for doing average work, 8 3-10 per cent. being absolutely below the standard, 1 1-10 per cent. being so-called geniuses; that is, eight out of every 100 were incapable, either mentally, moraly or physically, of competing with the children about them. Only one per cent. were brilliant, the restraint of the regular routine curriculum being to them a burden. Nearly six per cent. were found incapacitated physically, either temporarily or permanently, and one-third of these had superadded to their physical disabilities mental biases.

One out of every three of these was tuberculous. One out of six had throat troubles, and about the same number diseases of the nose. The hearing was seriously affected in two-tenths of one per cent. One out of each 200 had infectious eye troubles. Nearly two per cent. had communicable skin lesions, either parasitic or otherwise. About the same proportion were epileptic, or suffered from kindred nervous affections, such as periodic incapacitating migraine, convulsive tremors or periods of nervous excitement. One per cent. already exhibited marked symptoms of insanity. Three-tenths of one per cent. I found to be already strongly imbued with criminal proclivities.

Only eight out of every 100, between the ages of six and eighteen, presented anatomically perfect teeth; and it may be remarked here, that there was an apparent ratio between the teeth and the mental and physical capability. Sound teeth mean endurance and the power to accomplish by steady, plodding, hard work. By way of parenthesis let me say, that the writer carried the investigation of the teeth even further, into the colonies for the epileptic, the asylums for the insane, the schools for feeble-minded and prisons for the criminals. I found that epileptics of all ages enjoy less than thirteen teeth per capita; the insane fifteen and a half; the criminal slightly over eighteen; the feeble-minded about the same. Each class presented most striking anatomical peculiarities and abnormalities of the mouth, especially of the teeth.

Could any stronger plea than the above statements be made for the medical care of the school child?

The French government estimates that every able-bodied man is worth to the public $400 a year, every healthy woman $200 a year. Suppose of the 400,000 school children of Georgia to-day four out of each 100 are to become public charges some time during life. That will make 16,000 to become future burdens to the State, costing the taxpayers

$75 per capita, or $1,200,000 in expenses, besides losing 300 times 16,000 in the failure of these people to be self-supporting, making a grand total to the State of Georgia in the next generation of $4,400,000 a year. This is certainly an underestimate.

Suppose by the proper care of the present school children, one in four, who otherwise would be lost, could be saved and made a worker, instead of a drone. The State would be the gainer by $1,100,000 a year in the next generation.

Now we arrive at the question—What shall we do with the defectives? To this there could be but one answer. Correct if possible, otherwise segregate. Segregation may seem unfair to the defective. But we must act on the principle of the most good to the greatest number; and any teacher will tell you that more than half her time and energy will be spent on one so-called peculiar child, leaving only half for the whole rest of the class. Is this fair? Is it just to waste energies on one who is incapable of appreciation, and stint it with those upon whom the future depends?

In the country schools complete segregation is not practicable, and our only hope there is to separate as best we can, so as to get a minimum of damage from the defective, and give a maximum of good to the average. Only an expert physician should be allowed to pronounce a child defective and place it under this quasi ban. On the other hand, it is not fair to hold the specially bright pupil down to the average, but his forging ahead should be regulated by the physician's thoughtful study and advice. And the peculiar bent and particular talent of each child should be noted, studied and directed so as to make it as advantageous as possible.

In conclusion, let me ask if any charity could be grander than this medical care of school children? Could any work

be nobler? For do we here not only help individuals but the whole of the future generations?

And what a feeling of pride it would give the medical profession to know that each generation is better, stronger, wiser, more powerful, more Godlike, because of being intelligently aided by the physician in its effort to grow and develop!

Can any other man or set of men do this task? Is it the duty of the minister? Is it possible to the lawyer? Can the merchant give it his time? Would you further laden the already burdened teacher? No; always no. It is peculiarly within the domain of the physician. It is his fairest effort. His very crucial test. Finally, it is par excellence, the province in which disease is preventable, and we as men and physicians shall not, can not, shirk.

MARRIAGE, HEREDITY AND ITS RELATIONS TO INSANITY AND ALLIED MORBID CONDITIONS.

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Some years ago I read a paper before the Medical Association of Georgia on this subject, and I know of no reason to justify me in changing any views entertained at that time, but have increased evidences in the way of statistics which go to confirm the views enunciated on that occasion; hence, this paper will be substantially the same, save some important statistics from the very best authorities known, and to which I crave the special attention of the Association.

In my opinion there is no subject of such vital importance to the human race mentally, morally and physically, and perhaps none so much neglected, as marriage, heredity and its relation to insanity and other morbid tendencies, inherited and acquired, that are readily transmitted, and it should be remembered that they are not manifested in a stereotyped form, but in an endless variety of morbid forms. Every quality and attribute of the mental and physical condition of man, such as will, intelligence, sentiment, passion, etc., of both the healthy and morbid, are capable of more or less direct transmission. Hence it can be readily seen that heredity and marriage are very important factors in the formation of the character of the people mentally, morally and physically. These tendencies are fixed in a people as in a family. Many of the most alarming diseases and con-

ditions to which the human race is subject can be traced directly to improper marriages. When both families have defective organisms we are not justified in expecting a perfect mental and physical organism from such a marriage, unless under the law of atavism or reversional heredity, which is exceedingly rare.

Ribot says that heredity is that biological law by which all beings endowed with life tend to repeat themselves in their descendants.

When we consider the great danger of defectives intermarrying, and the legitimate results of such marriages, and that the laymen are looking to the medical profession for light and guidance in the laws of life and health and everything that tends to the improvement of the human race, it would appear that the duty devolves upon the medical profession in educating the masses up to understand and appreciate the great danger of violating that biological law by marrying without knowing what morbid tendencies are lurking deep down in their constitutions that simply need the slightest exciting cause to develop the most formidable disease. There are thousands of people to-day that have inherited some of these morbid tendencies that are standing on the border-line of insanity and only require a slight cause to tumble them over. This condition is due to the violation of the inexorable laws of nature, and the inevitable result of this violation is the destruction of society and the powers of the government, and the physical and psychological powers of the human race. It is well known by all who have given any attention to psychiatry and heredity that the violation of these natural laws is to increase the burdens, disease, suffering, depravity and crime of the people, and just as long as we disregard the laws of heredity in allowing defectives to intermarry, just so long will we increase and perpetuate morbid tendencies. It is a blot upon our civilization and Christian intelligence not to make

an earnest effort to correct it. The laws of religion, health, obedience and civilization are inseparable. They go hand in hand.

Our civilization is due to religious influence, and if we could obtain the true etiology of much of our depravity and crime, it would point directly to heredity and bad surroundings as the predisposing and exciting factors. We will not be justified in hoping for the elimination or abatement in these inherited morbid tendencies so long as they are fostered by society and a mistaken judgment or benevolence, but our susceptibility to them will continue to increase in each succeeding generation in the same ratio in which we disregard the functions that resist disease and neglect the proper means for neutralizing and eliminating the poison that lurks within our constitution, whether there by transmission or acquired by our own acts through the influence of our surroundings. The sooner we recognize the fact that the mental, physical and moral endowments are inherited just as readily as the personal appearance, in form, features, etc., the better for our race; but still better when we recognize that maladies and abnormal conditions are to a large extent preventable; hence the necessity of knowing our antecedents' history, and our tendency to disease should be held in check by avoiding so far as is possible everything that would be likely to damage the mental and physical integrity; and under no circumstances should we lose sight of the family defects. No family should hesitate or fail to give their family physician, as far as possible, a full and complete history of their antecedents as far as it relates to health and disease. Also their tastes, habits, idiosyncrasies, and the natural tendencies of their children, and as to the mental training they should have, and also in regard to their marriage and business calling in life.

It has been my duty for many years to care for many of this unfortunate class, and my observation and the records

of the institution over which I preside will show that a majority of the maladies point back to heredity as a leading factor in their causation, and they further show that it is not necessary that the defects of the parent should be fully developed in order to transmit to the children strong tendencies and susceptibilities to morbid conditions. According to Kraepelin in at least sixty to seventy per cent. of the insane there is present some taint in the near relatives.

I am satisfied that all who have given any attention to psychiatry, and the histories of all cases in similar institutions if they could be correctly obtained, would fully justify me in these statements. It would not be difficult to produce instances of families who once possessed great mental and physical powers and good morals who have married into defective families and continued to do so until they have degenerated physically, mentally and morally, becoming a burden to themselves and society, without even considering the inevitable results of violating that biological law of heredity.

Is it not the duty of the medical profession to endeavor to check or cure these great evils, or to prevent the perpetuating of such deplorable conditions when so much might be accomplished by proper training and education? If we educate the masses up to fully understand and appreciate the laws of health, and the natural principles which underlie human development, much of this degeneration, in my opinion, might be checked. Is it not reasonable to suppose that if we know that we are susceptible to any particular disease that we would use every precaution to prevent its development, and with such knowledge would we not cultivate the healthy tendencies, and develop stronger and more vigorous constitutions so as to be better prepared to resist attacks of destructive influences? Many of the morbid tendencies, if they are not fostered and developed, will become atrophied, and with proper marriages and

healthy surroundings will ultimately fade out. Many of us are living to-day by accident. Some of our ancestors had perhaps consumptive, insane or alcoholic diathesis, and by mere fortuitous circumstances married into healthy and vigorous families, free from all unhealthy taint, and hence we are living. The richest and best inheritance is to be born of vigorous and healthy parents, free from all morbid tendencies. If education at home and in our schools on the laws of health should fail, then would not the dictates of humanity and society demand that there should be a board of health in every county composed of the best and most conscientious physicians, whose duty it should be to give a certificate so far as the mental and physical condition of the parties are concerned before they could obtain marriage licenses? If this should fail, then an operation with a certain class—say, the most depraved and some of the epileptics; would this not be a source of true benevolence? The people, however, will have to be educated up to the necessity of such a course.

I fully understand and appreciate the difficulties that are to be met in such a course; hence, it will require time and education on this line. The masses will think their liberties and rights are being unjustly interfered with, but do not such marriages take away the liberty of their posterity, and entail upon them deformity, suffering, disease, crime and death? A large number that spring from such marriages drift in the course of time into penitentiaries; many die in early life from scrofula, and others die on the gallows and by suicide, and from alcoholism. Many drift into the almhouses, and others into various charitable institutions.

Mr. W. Douglas Marrison, the eminent English criminologist, in discussing the apparent close relation between the habitual criminal and the defective classes, sums the matter up as follows: "The habitual criminal is the product of pathological and atavistic anomalies; he stands mid-

way between the lunatic and the savage." Among the statistics given in substantiation of this view the following is of special interest in connection with the subject before us. He states that among the inmates of the New York State Reformatory twelve per cent. were descended from insane or epileptic parents, and thirty-eight per cent. were children of drunken parents.

If this class can be deprived of their liberty by a jury of twelve men, why should not the defectives, in justice to society and humanity, be deprived of the right to intermarry and leave such a legacy to their posterity? We have some good laws in regard to some diseases that are not half so alarming in their tendencies, and cannot be perpetuated by transmission, by which the liberties of the people are restricted to prevent their spread, such as yellow fever, smallpox, etc., because it would be detrimental to the public health. Individuals and communities are quarantined, and in case of smallpox they are required, or forced, if necessary, to submit to vaccination. These diseases are not near so formidable and destructive or hurtful to the public health or productive powers of the government, or the harmony of society.

It is evident that the masses do not consider or properly appreciate the predisposing causes of disease or the possibilities of the future in regard to them. A few illustrations showing the direct results following the marriage of defectives cannot fail to impress the most incredulous.

The following case illustrates well the far-reaching and deplorable effect upon society and the human race of allowing defective paupers to marry out of poorhouses. This is not infrequently sanctioned under the mistaken idea that it is an expedient measure in furnishing the pauper a home, and relieving the State of a charge. The case is that of an epileptic woman, an inmate of a poorhouse, who was allowed to marry a farmer who wanted somebody to keep

house for him. The result was sixteen children. Fortunately seven died, but the remaining nine were defective, some being epileptic, and others mentally deficient in varying degrees. Case cited by Dr. G. H. Knight in report of International Congress of Charities, Correction and Philanthropy, Chicago, 1893.

Echeveria, in a study of 136 married epileptics, of whom sixty-two were men and seventy-four women, found that they had given birth to 533 children. Of these eighty-one boys and 106 girls, a total of 195, died of convulsions in childhood, while sixteen boys and eleven girls, a total of twenty-seven, died very young in life from other diseases. Nine boys and thirteen girls, a total of twenty-two, were still-born. In these children epilepsy was present in forty-two males and thirty-six females; total seventy-eight. Idiocy was present in eleven males and seven females; total eighteen. Mental disease was present in five males and six females; total eleven. Paralysis was present in twenty-two males and seventeen females; total thirty-nine. Hysteria was present in forty-five females. Chorea was present in two males and four females; total six. Strabismus was present in five males and two females; total seven. Healthy were sixty-three males and forty-two females; total 105.

Some idea of the enormity of the danger to society from these sources may be obtained when we consider that there are in the United States at the present time 135,000 epileptics, and, according to the United States Census of 1890, there are in the country 95,571 persons classed as feeble-minded and idiots. It is well known that a large per cent. of these classes have been allowed to marry and perpetuate defectives.

Another point of very great interest in this connection is the vast amount necessary for the care of defective classes. A recent writer, Dr. A. C. Rogers, pleading for the State care of the feeble-minded, with inclusion of

the idiotic, estimates the annual expenditure which this would require in the United States at $16,500,000. This estimate finds corroboration in the statement of another writer, Dr. W. E. Fernold, to the effect that at the close of 1892 the nineteen public institutions of the country (caring for one-fifteenth or one-sixteenth of the entire feeble-minded population as enumerated by the census) had involved an outlay for their buildings and grounds of more than $4,000,000, while the annual expenditure for instruction and maintenance of these defectives was over $1,000 000.

The question is frequently asked whether the children of parents who are the subjects of hereditary taint or acquired morbid habits that are transmitted should marry. In my opinion, only under certain conditions. Thorough investigation should be had before we advise, and if possible we should ascertain the nature and the cause of the morbid tendency, and the amount of predisposition to a diseased diathesis, and whether inherited or acquired, and if manifested in the parents before the conception and birth of the individual. And in this connection we should not lose sight of the fact that the physical and mental nature are governed by the same law. All of the physical and psychological indications should be carefully considered.

Accidental causes that occur after the birth of children should not be regarded as predisposing causes, nor should senile imbecility. No one having a direct or even remote tendency or taint to insane, neurotic, alcoholic, consumptive or syphilitic diathesis, etc., should intermarry; for, as I have said before, the morbid tendency does not always return in a specified form, but may be manifested in a variety of morbid tendencies: hence, defective organisms should not intermarry, but they and their descendants should marry into families of vigorous and healthy constitutions free

from all morbid taint, and at the same time cultivate the healthy and hold in check the morbid by good environments and strict obedience to hygienic laws. If we wish to improve this class we must provide for them ancestors whose habits and tastes we wish to perpetuate and intensify. The mental and physical condition can only be improved by giving them better mental and physical constitutions and more favorable surroundings. Violation of God's inexorable laws is fatal to the advancement of the human race. The natural tendency of defectives is degeneration, and they will disregard the happiness and welfare of their posterity and society, being dominated by their morbid, depraved and selfish natures. This condition in many cases can, in my opinion, be ultimately and permanently eliminated in the human animal as it has been done in many instances in the lower order of animals, but before this is accomplished all the endowments must be well considered in marriage, and pursued persistently and methodically, and no doubt the general results would be for the advancement of the human race.

The phenomena of reversional heredity, or law of atavism, occasionally appears in apparently healthy families having children of defective organisms, but with judicious marriages and obedience to the laws of health these defects will soon fade out. It is a reflection upon humanity and Christianity that the influence of the laws of heredity touching the human animal are not appreciated, but are fully appreciated in their influence upon the lower order of animals in determining strength, speed, docility, etc. You will find no one engaged in breeding fine stock that will not examine the animal from head to foot, and make a most thorough investigation as to its antecedent history or pedigree; indeed every quality, before they will select it for breeding purposes. If it is so important to recognize this law in obtaining such qualities as we may desire in the lower order

of animals, why is it not far more important in the human race when we know the same law is operative alike in this race. I have often been impressed with the earnest attention given to the influence of heredity in stock-raising, and I have been surprised and shocked at the utter disregard of its influence touching the human family. It is a blot upon our civilization and intelligence that we do not value the welfare of the human race as we do the horse, cow and hog. Children are frequently brought up without reference to their natural tendencies or possible results, when it should be the principal aim and object of all educated systems, in my judgment, to carefully consider their inherited tendencies, needs and necessities, for no two children are any more like in their mental and physical organisms than they are in their personal appearance and features, etc. The only source through which we could hope to eliminate these defects is proper education in the formative stage of life. It would be almost impossible to accomplish it in adult life. "Train up a child in the way he should go, and when he is old he will not depart from it." Obedience should be a leading feature of education. If children learn to obey in youth it will be a fixed principle with them in adult life, and it will better prepare them to obey the laws of health. Self-control will be much easier, and it is elevating socially and morally, and necessary to health and happiness. We are taught in the divine Word that suffering, depravity and death came from disobedience. The same law is still in force, and the same results will follow. Maudsley says in his work on insanity, "a knowledge of ourselves, of our body and the various functions of its organs, and the effects of external objects would be a most effective antidote for most of the evils which afflict mankind."

Dr. D. H. Tuke, in his work on insanity and its prevention, says: "Classes rise as individuals rise, and as nations rise, by attending to those great moral laws of God upon which true success and happiness can alone be found."

"Echeveria, a distinguished alienist, who has collected a large number of statistics on the subject, gives the following in reference to the histories of sixty-eight males and forty-seven females who had experienced alcoholism in some of its forms. The number of children born to these persons was 476; and of this total, twenty-three were still-born, one hundred and seven died from convulsions in infancy, thirty-seven died from other maladies, three committed suicide, ninety-six are epileptic, thirteen are congenital idiots, nineteen maniacal or hypochondriacal, seven have general paralysis, five locomotor ataxia, twenty-six hysteria, twenty-three paralysis, nine chorea, seven strabismus, three are deaf, nineteen are scrofulous and crippled. Of these children, two hundred and five (205), or nearly fifty per cent., have exhibited drinking tendencies."

From the best evidences obtainable the most potent factor in the causation of defective mental action is alcoholism. While there is a very small per cent. of insanity and other deplorable maladies due directly to alcoholism, a very large per cent. is indirectly due to it. Many alienists who have given much attention to the subject put it at from 50 to 75 per cent. It is evident to lessen drunkenness is to lessen insanity and other morbid conditions. There can not be any doubt but that the children of intemperate parents are much more liable to insanity, epilepsy, idiocy, imbecility, intemperance, etc. The worst effects of alcoholism are to be found visited upon the succeeding generation of drunken parents. If the habits of the women were like those of the men, we would have degenerated long ago. But the fact that few women are addicted to alcoholic liquors or substances saves the race from utter ruin. From all of the nervous diseases which we inherit, there are none more disastrous than alcoholism. Blandford, one of the standard authors on insanity and its treatment, says: "If we could ascertain the statistics of insanity in other countries, civil-

ized and semi-civilized, I think we should find insanity in proportion to the use of intoxicating liquors and substances."

A distinguished alienist, Dr. Peter Bryce, says, "A very small per cent. is put down as the direct result of intemperance, perhaps less than five per cent., but nine-tenths of insanity is the result of hereditary taint. How much of this inherited weakness is the result of intemperance in the ancestors would be hard to say, but I have always believed that it is much larger than is generally supposed. Some have put it as high as seventy-five per cent., which I do not think is exaggerated. I know of nothing so potent in the production of brain degeneration as alcohol."

A few words now touching the mental and physical condition of the Southern negro up to 1860, and the radical changes that have taken place since then, and I am done. Up to 1867 there was never a healthier class of people than the Southern negro, and, while there were some few idiots and epileptics, they were exceedingly rare.

The census of 1860 will show that there were only forty-four insane negroes in the State of Georgia in a population of four hundred and sixty-five thousand six hundred and ninety-eight, or one insane negro to every 10,584. The census of 1870 shows that there were 129 insane negroes in a population of five hundred and forty-five thousand one hundred and forty-two, or one colored insane to every 4,225. The census of 1880 gives the colored population as seven hundred and twenty-five thousand one hundred and thirty-three, and colored insane 411, or one to every 1,764. The census returns from 1860 to 1880 show a gradual increase of insanity among the colored race in this State, and the increase from 1880 up to the present time has been much more rapid on account of the hereditary tendency. The etiology of the sudden outburst of insanity in the colored race is not only of profound interest to the psychologist, but to the entire medical profession. Insanity will still con-

time to increase in this race just so long as they violate the laws of health, and but for the rapid dying of the colored insane from tuberculosis the number would soon be equal to the whites in this State.

We know that the causes that have produced so much insanity and tuberculosis since the war could not have existed before, for insanity and tuberculosis would have been the result. The chief inquiry is what are the leading factors in the causation of those diseases from which they were almost entirely exempt. It is believed by some that the thought of to-morrow, which they never had in slavery, and the mental anxiety as to the care and support of their families: but their condition will not as yet justify such an opinion. This cause may perhaps exert an influence some time in the future should they become more refined and more highly sensitive and delicately organized. Their extraordinary mental and physical health and their immunity from certain diseases were due to healthy restraints that surrounded them from their cradle through life. They were taught from infancy obedience and self-control, and forced to obey all the laws of health. Their surroundings all tended to health. The cause of insanity and every disease that they now have from which they were exempt was due to the removal of all healthy restraints that formerly surrounded them.

As soon as they were removed they began to violate the laws of health, indulging their appetites and passions, and falling into all sorts of irregularities. Alcohol and syphilis is a most potent cause of insanity with the Southern negro. It is to be apprehended with the negro race more than any other influence, because of their emotional nature and disposition on the part of both men and women to drink.

Much more might be written on the subject of insanity and tuberculosis with the negro, but this paper is quite long enough. I might say that too much liberty is dangerous to the mental and physical integrity of any people.

GONORRHEA AS A SOCIAL PROBLEM.

By Drs. CHILDS and CHAMPION, Atlanta, Ga.

It can be stated without fear of successful contradiction that most of the diseased pelvic conditions of women, and the untold suffering they have to endure, are traceable to gonorrheal infection, and the blame can be laid in a large measure at the door of the medical profession.

In a report of the Committee of the Section of State Medicine of the American Medical Association, Munniston states: "Without classifying doubtful cases as gonorrhea, 90 per cent. at least of pelvic inflammatory troubles are attributable to gonorrhea, the infection being usually of a mixed character—gonococcal with some one of the pyogenic micrococci:" and Joseph Price says, "that in over one thousand sections for pelvic suppuration, 90 per cent. were traceable to gonorrheal infection, and that 90 per cent. of these histories are reliable and clear." Czerny "regards it as impossible to tell," and Boldt estimates from five to six per cent., admitting it as a guess. Ten per cent. is the estimate of Skene, Robb, Eastman and Bovee; Wathen "nearly all of the cases," and Mann, "nearly all of those who have not borne children." The estimate of Pozzi and Frederick is 75 per cent.

Naeggerath thirty-five years ago stated that a "vast proportion of the death-dealing diseases in women were due to gonorrhea which the husband had had years before." While he who makes a statement like this in regard to a disease that is accountable for so much human suffering may be

branded as an extremist, if we will reflect for a moment upon the highly infectious nature of gonorrhea, how lightly it is looked upon by the laity and many members of our profession, the number of gonorrheal patients still uncured that marry, the number that are dismissed by the physician as cured but time proves to the contrary—these patients being dismissed without an examination of the urethra for stricture, not even the urine for "clap-shreds" (the secretions, if any, should be obtained from the urethra, prostate, and seminal vesicles and examined microscopically)—we can form some idea as to the number of women necessarily infected. If it was possible to examine the urethra of the husband of every woman suffering with inflammatory conditions of the uterus and adnexa, in the great majority of cases the source of infection could be traced to the husband's urethra.

The effects of gonorrhea are more serious and permanent in the female, and when it has invaded the deep glandular structures, the tubes, ovaries, peritoneal cavity, it is a question whether it is ever cured. The number of cases of gonorrheal ophthalmia, the large per cent. of the inmates of the blind asylums due to gonorrhea, and the number of sterile marriages due to the disease should alarm the laity and the profession more than an occasional epidemic of yellow fever, smallpox, or bubonic plague.

Now, the question arises, Is gonorrhea a curable disease?

All cases in the male can be cured if the patient will follow instructions and submit to necessary treatment, whether medical or surgical.

In the report of the committee from the American Medical Association referred to, it is stated by Lydston that gonorrhea is curable "in the majority of cases"; Chismore, Fuller, and Verhoogen, "in the great majority"; Andry, "if the physician attends to it diligently and the patient is willing to care for himself as required and for as long a

time as is necessary"; Feleki, "only a small percentage must, in consequence of the uncertainty of the duration of their infectiousness, or in consequence of serious complications, be looked upon as incurable. I estimate this proportion as about three per cent." Fingen states that "all are curable." The question is frequently asked as to the curability of anterior and posterior urethritis. In any case of gonorrhea that has covered a period of two weeks, the posterior urethra is involved; which can be demonstrated by washing out the anterior urethra and having the patient to urinate in a glass, when "clap-shreds" will be seen. So, practically, in every case of the disease the posterior urethra is involved. In our opinion it is curable either in anterior or posterior urethra.

We can state to a patient he is cured when he has no untoward symptoms, such as too frequent urination, getting up at night to urinate, pains in the urethra or bladder; when the urethra is free from stricture; when the prostate is not sensitive or enlarged; when the seminal vesicles are normal, and when, after repeated examinations, the gonococcus is not found and the urine is free from pus cells. When we find a patient's urethra in the condition as described, it will be safe for him to marry, and if he contemplates such a step at the time, not to wait three, six or twelve months to determine whether he is well or not, because he will in the meantime, in all probability, contract the disease again.

Within the past two years it has been our rule to stain and examine the discharge from every urethra we have treated. Frequently patients present themselves for treatment when there are only "clap-shreds" present. When such is the case, we centrifuge the urine, collect the sediment, stain and examine it for the gonococcus. If necessary, we throw a strong solution of silver nitrate into the urethra so as to produce some discharge for examination. We have 219 specimens stained, mounted with name and

date, and whether acute or chronic, obtained from patients in private practice, and in 98 per cent. of examinations made, where discharge was collected from the meatus for examination, whether of acute type or chronic form that had persisted for years, the microscope showed the gonococcus present. In other words, when there is a discharge of pus from the urethra 98 per cent. of the cases will prove to be infectious. Of the 219 specimens obtained, forty-three were from married men living with their wives. Of the forty-three married men, twenty-one voluntarily stated that their wives were in bad health and were being treated for some female trouble. No statement was made by the other twenty-two or questions asked in regard to the health of their wives. It is a notorious fact that when a married man comes for treatment for gonorrhea, or any urethral trouble due to the disease, that he states his wife is an invalid and tries to excuse his sins on account of his wife's health being wrecked, which he alone is accountable for.

Something should be done to check the ravages of this disease, which is more serious and far-reaching than any disease that affects womankind. Regular inspection and examination of inmates of houses of prostitution as practiced in European countries have been suggested; the examination by law of the candidates for matrimony has been advocated and other legal methods suggested, but I think it will be admitted that regulation by statute is impracticable.

The only feasible way to check the ravages of gonorrhea is through the medical profession. Any law instituted or put into practice will get into the hands of politicians or incompetent men, who will use the office for self alone, and be an injury to the profession and the public generally. Good can be accomplished and results obtained by teachers in the medical schools indelibly impressing upon the minds of the men that will make up the

profession of the future, the serious nature of gonorrhea and its far-reaching evil consequences. Let each individual member of the profession take and feel enough interest in the gentler sex to see to it that every patient that we treat with gonorrhea has a urethra that is beyond a doubt free from gonococci before he is dismissed as cured, or allowed to marry. It should be the duty of every man who undertakes to treat the disease to first impress upon the patient the importance of always having the care and attention of a competent physician, and not a druggist to tide him over a disease that has such serious consequences. The patient should always be impressed that so long as "clap-shreds" or pus can be found in the urine, that the urethra is still diseased, and in all probability infection is possible. It too frequently happens that men with a slight discharge from the urethra tell us they consider the discharge harmless, not knowing the slight morning drop is teeming with thousands of gonococci.

As stated by Konig, "no doubt it will be always impossible to get rid of this disease entirely, but if it were generally known how serious may be the consequences, the number of infections would no doubt be much less. The education of the public in this respect is chiefly in the hands of the medical profession. Have we been doing our duty in this respect?"

SOME SOCIOLOGICAL PROBLEMS IN RELATION TO MARRIAGE, HEREDITY, CRIME, ETC.

R. R. KIME, M.D., Atlanta, Ga.

The medical profession is an integral part of society which it builds up or tears down in proportion as it rises above or falls below the moral standard of each community or state.

The responsibilities of the profession are in proportion to its enlightenment and opportunities. We cannot, if we would, free ourselves from responsibility and obligation to humanity so long as we practice conscientiously the profession of medicine.

While in a strict literal sense we may not be "our brother's keeper," yet in a broad conception we are. The medical profession is supposed to understand the normal and be able to recognize the abnormal in the mental and physical of mankind. In a proper understanding of the normal and abnormal we must form some conception of cause and effect. The abnormal is but the effect of a cause operating on the normal. Disease is but a deviation from the normal mentality, morally or physically, and the resultant of some antecedent cause. In mankind cause and effect reach the acme of perfection or the lowest depth of degradation. This is true because of higher endowments. The higher in the scale of life, the greater the capabilities for good or evil and the greater the resultant effect of existing causes. The standard, physically, morally and intellectually, is elevated or degraded by the resultant effects of heredity and

acquirement. The transmitted and acquired characteristics of mankind tend to uplift or tear down, according to well-recognized principles. The salvation of the world physically, morally and intellectually, depends on three great causes—first, Heredity; second, Training; third, Environment.

The sooner we as a profession recognize the full effect of these great factors in the development of the human race and proclaim them to the general public at every opportunity, the sooner will we reach that acme of perfection designed in the creation of mankind. We are not dealing with this subject from a spiritual or religious standpoint, but from a purely rational, scientific, broad basis, solely with a view of benefiting mankind.

The achievements of the past century in sanitary science, with the antiseptic and aseptic methods of preventing disease, have marked an important era in the world's history. These achievements have been attained through the physical realm with great benefit to mankind. In the twentieth century it is to be hoped that we will enter the moral and mental realm with even greater benefit to humanity. As the moral and mental are higher than the physical, the opportunities for benefit to humanity are increased in the same proportion.

The mental and moral preside over the physical, lifting to higher places of usefulness or degrading to the level or even lower than the animal. Purify the moral and mental, then the physical becomes pure. Corrupt the mental and moral natures, then the physical becomes diseased. The physical nature being lower cannot overcome and predominate to elevate the degraded moral nature. The moral and mental natures uplift or degrade the physical at will, according as they are pure or impure.

"Ye shall know a tree by its fruits—shall ye gather figs

from thistles?" "As ye sow so shall ye reap—the sins of the father shall be visited even to the third and fourth generations," all speak solemn, truthful, burning, everlasting truths which we can not evade, be we Jew or Gentile, infidel or agnostic, saint or sinner.

There are certain fixed laws that govern our existence and by them we must rise or fall. We cannot transmit that which we do not possess in substance or possibilities. A child is but the offshot of the combined natures of father and mother. Its fate is determined by three factors—heredity, training and environment. Heredity is the first primal factor in the development of the human race, but its imperfections may in a measure be eliminated by proper training and environment. It should be the inalienable right of every child to be well born, as they are brought into the world without their consent or knowledge.

The human being suffering with disease brought about by sinful indulgences has no moral right to bring children into the world to suffer for their sins. I will even carry this principle farther and say, those suffering with hereditary diseases that are a menace to society, transmitted to them, should not bring children into the world to suffer, even though they may have a moral right to do so.

Here it is discrimination and judgement should be used, so as to do justice to the individual and yet protect the unborn child and future generations. Because our parents have sinned and transgressed nature's laws does not justify us in so doing.

Here I wish to present a broad principle that should actuate all mankind from a sociological standpoint.

No person has any moral right to indulge simply for pleasure or self-gratification in anything not essential to life that will transmit diseased tendencies, mental, moral or physical, to their offspring. Another broad principle

that should govern mankind is, never to engage in anything nor influence any human being to engage in anything that will lower the standard of mankind, mentally, morally or physically.

Some will say this is an infringement on personal rights and liberty. Personal liberty does not constitute personal right. Personal liberty may be right or wrong, just or unjust. The father has the liberty to chastise his own child, which may be just or unjust; the criminal has the liberty to marry and propagate his kind, which is unjust.

The insane, epileptic, tuberculous, have the same liberty, and perhaps some personal right, to get married when those diseases are due to heredity. Persons suffering with insanity, tuberculosis, dipsomania and venereal diseases brought on by dissipation should have neither the liberty nor the right to get married and propagate ther kind. What moral right has any man or woman to live a life of depravity, producing disease and degradation of their own body, and then bring children into the world doomed to disease and suffering before they are born.

Man is a free moral agent, has the liberty to choose good or evil, but certainly has no moral right to chose evil. No man lives unto himself alone; his deeds live after him in a twofold sense: First—By its impress mentally on his associates. Second—By its impress upon his offspring, mentally and physically, in accordance to the laws of heredity, environment and training. If his sins, vices and degeneration were confined to himself, then he might have some personal right to indulge on them. A man transmits that which he possesses, bearing fruit after his own kind.

After a careful survey of this question we are forced to conclude children are what their parents make them by heredity, training and environment. If we desire our chil-

dren to be robust, healthy children, physically, morally and mentally, we must be so ourselves. The boy can not smoke cigarettes or tobacco, drink whisky, swear, act immorally and sow his wild oats without reaping as he has sown.

You may reform the boy, reclaim the fallen girl, but you cannot make them over; the seeds of vice have been sown; they can never be made as pure as they once were and as if they had not sinned. Such wayward ones have prevented their full development, crippled their usefulness and even before they are grown rendered themselves unfit for paternity, else they propagate a degenerated race in proportion to effects of their vices.

The farmer rejects the shriveled grain; the stock-raiser selects for propagation the best developed stock, not only physically but in traits and characteristics; the florist rejects the imperfect and selects only the pure for cultivation. Shriveled grain sown in poor soil, provided with improper nourishment, develops a degenerated grain. Good stock improperly fed, trained to bad habits, degenerates, and by a law of nature, soon runs out or is destroyed.

But man, the masterpiece of creation, is allowed all liberty, just and unjust; he indulges in vices of no benefit but of positive harm to himself, and propagates a degenerated race, a curse to civilization, a burden to honest people, and this is called liberty and personal rights in an enlightened civilization.

God deliver me from such personal rights and liberty.

When a human being so far forgets his personal obligations to himself, humanity, the state and his own offspring as to habitually indulge in crime, vice and immorality, he should be controlled by legal measures. What moral or personal right has such a man to marry? No minister of the gospel or officer of the state should be allowed to perpetrate such an outrage on humanity as to solemnize such marriages.

As an example and object-lesson we quote the following (1 Brower, Amer. Med. Asso. Jour.) from The Ben Ishmael Tribe, by McCullough:

"He discovered and identified 1,750 descendants of this man living in Kentucky in 1790, who had been criminals and paupers, among whom 121 were prostitutes. In six generations 75 per cent. of the cases treated in City Hospital, Indianapolis, were of this man's offspring."

"Prof. Pelman, of Bonn University, discovered and identified 709 descendants of Frau Ada Jurke, a notorious drunkard, who was born in 1740 and died in 1800. Of these seven have been convicted of murder, seventy-six of other crimes, 144 were professional beggars, sixty-one lived on charity, and 181 were prostitutes. This family cost the German government for maintenance, cost of courts, almshouses and prisons, one and a quarter million dollars."

If this woman had not been allowed to marry, been rendered sterile or properly confined, so as not to propagate her kind, it would have been a blessing to her, and prevented untold suffering, disgrace and degeneration.

It is certainly the plain moral duty of a state or community to protect itself, to suppress or prevent vice, to care for and protect innocent, helpless victims from being born into degradation, vice and misery by moral degenerates.

When men and women assume the right to degrade themselves by wilfully indulging in vice and immorality, sinning away their own birthright, then in the name of Liberty, Right and Justice, I protest against their propagation. In the name of that high honor that should characterize maternal and paternal instinct, I protest. In the name and behalf of countless victims doomed to degradation and misery before they are born, I protest.

When men and women wilfully abuse the principle of

[1] Boies: Prisoner and Pauper, p. 76. G. P. Putnam & Sons, 1893.

free moral agency the results should fall upon themselves and not others. Such is not a curtailment of their rights and privileges, but a just recompense for their deeds. As soon as they transgress the laws of nature or morality, they relinquish in the same degree their rights to liberty and freedom.

Liberty may be a blessing or a curse. Liberty to the Mormon means the right to more wives, to the inebriate the right to more whisky, to the profane more profanity, to the criminal more crime, to the degenerate the right to indulge in sin and propagate his kind.

That such liberty constitutes right and justice, to the sane reasoning mind, nothing could be more absurd.

We are led to ask the question, who is free and entitled to that inalienable right of absolute liberty?

I answer, he who is born free and kept pure, physically, mentally and morally. If the origin of life be perverted, then contaminated from the cradle to the grave, how can we conscientiously lay just claim to liberty and freedom.

Absolute liberty and freedom means absolute purity.

Every effect must have an antecedent cause. Virtue, manhood and nobility of character are not the result of chance or luck; neither is sin and degradation—both are but the just recompense of deeds done in the body.

In the reformation of the world, improvement of the race and the uplifting of humanity, we must get at the primal factors or causes that build up or tear down.

Asylums for the inebriate, reformatories for youthful criminals, homes for fallen women are to be commended; they do a good work and should be liberally supported, but pause and meditate for a moment; they are but dealing with the effects of antecedent causes. Reform the drinker and change the customs of society and there will be no inebriates. Give proper paternity and maternity, with suitable

training and environment, then there will be no youthful criminals. Establish the same moral standard for both men and women with a high sense of honor, then there will be no fallen women.

It is easier to control crime and immorality in its incipiency than after the flood-gates are open. A boy does not develop into a man, a girl into a woman, a shrub into a full-grown tree at one bound; neither is a drunkard, a criminal or a thief developed in a day. We punish the drunkard, the criminal and the thief, which at best is but suppression of the effect of an antecedent cause.

As honest physicians we must seek the truth as revealed by scientfic investigation, and not ignore lessons taught by practical experience and close observation. Can any physician as a student of nature deny the evil effect on the offspring of the habitual drunkard, the inveterate user of cigarettes, of the drug habit, or he who constantly indulges in vice and immorality?

None of these things are essential to the life of a well person; then, if they tend to degenerate his offspring, what moral right has a man to indulge in them? Can any man deny that these are some of the primal factors in the development of the race?

Purity from purity develops, sin from sin grows, regardless of our views and theories, likes or dislikes.

To try to brush aside lightly these questions and call the writer a fanatic is unmanly and unworthy the high calling of a medical profession. If these arguments are fallacies, meet them with sound reasoning and help us to arrive at the truth on a more scientific basis. It is certainly self-evident if we desire a pure, noble, well-developed race, we must not only suppress vice, but eliminate its cause in high as well as low estate, dealing with it in its incipiency, applying the old adage—"An ounce of prevention is worth a pound of cure."

In the name of humanity and those nobler aspirations that tend to higher planes of usefulness, I urge upon the medical profession an advance stand in the prevention of disease, not only of the physical but of the mental and moral as well.

We desire this Association to appoint a committee of three members to act in conjunction with the committee from the Tri-State Medical Society for the study of sociological questions, with a view of securing unity of action, not only of the profession in Georgia, but Alabama and Tennessee also.

This committee, with the influence of the medical profession of three States back of it, can be a great factor for good in developing the human race. After careful study, with information gained from the profession and discussions at our various societies, the committee hopes to be instrumental in securing legislation on proper subjects and help to educate the public with the aid of the profession on lines that will prevent many diseases and much suffering.

So far as the work of the committee has developed, it is our desire to take up—

First—The subject of marriage and propagation of criminals. In this paper and discussion of these subjects I speak only my individual views and not authoritatively from the committee. I am firmly convinced as a principle of right and justice, habitual or confirmed criminals should not be allawed to marry or propagate their kind. They are a curse to humanity, a menace to society, a traitor to the State, and their offspring doomed to degradation before they are born, and after birth a burden to society to be cared for, maintained and controlled by the State. To render such sterile by humane methods would be an act of charity to the individual and a blessing to humanity. This would prevent the development of a host of criminals and retard others from criminal acts. By his crimes he has

forfeited all moral right to marriage and fraternity, and is only entitled to protection that he may eke out his own existence. Even if he was impelled to the commission of crime to a great extent by heredity and certain anatomical malformations, it is only the greater reason for sterility.

Second—The marriage of the idiotic, insane, epileptic, tuberculous, dipsomaniac, and those with venereal diseases will be considered, and, if possible, certain restrictions as to marriage will be proposed. Many a marriage is but giving license and permission for propagation of diseased, crippled, degenerate children, doomed to misery and suffering worse than death. The regulation and restriction of these several conditions will require discrimination and judgement, which can best be obtaned by a committee working regularly and harmoniously along these lines. We hope to get our legal brethren interested in these questions and that they will give us valuable aid in working out these problems.

Third—The age of consent in the State of Georgia. What shall we say? My blood almost boils with indignation and words fail to express my opinion of a legislature that would fail to protect the innocent girl from the snare of the seducer. It is a disgrace to the fair name of Georgia, an ignominious slander on true motherhood and a crime against childhood. Can a man possessed of the proper conceptions of paternity, with the honor and chivalry of true manhood, fail to protect his daughter of 12, 14 or even 16 years from the hand of him who would rob her of that which is even dearer to her than life itself. No man should be counted worthy of the suffrages of the people that would not use all honorable means to protect our girls, and the medical profession should use their influence to prevent any such entering our legislative halls.

Fourth—Child Labor. It is a question of no little importance, and especially so at the present time, when cotton factories are being built so rapidly within the confines of our own State. To the casual observer it is evident we need some legislation along the line of protection of children that now work in these factories. Taken at such a tender age, compelled to work ten to eleven hours per day in bad air, often with improper food and clothing, without education or proper moral training, and what can they hope for? In many instances the money they earn by sacrificing health, happiness and future prospects is squandered by the father for his own gratification and of no benefit to his family. Shall we stand idly by with folded hands and not make an effort to protect these helpless children and help lift the yoke of bondage from their young shoulders and give them a reasonable chance in life?

Time forbids further enumeration. These are only a few of the many things that affect the development of the race; others we hope to take up later. In conclusion, allow me to state that what I have said is not in a spirit of criticism or fault-finding, but an honest expression of my views given with a hope of benefiting humanity.

DISCUSSION ON PAPERS OF DRS. POWELL, KIME AND CHAMPION.

Dr. Jas. B. Baird, Atlanta: I understand that Dr. Kime refers in his paper to the recent action of the legislature in declining to raise the age of consent in this State. That proposition was very earnestly championed by some prominent society ladies in Atlanta, and they expressed, in private and through the public press, great indignation at the failure of the legislature to do its duty by the girls. The failure of the measure caused me to make some inquiries as to the refusal of the legislature to pass the bill.

I found that if they had passed this bill it would have subjected many young white boys to prosecution by negro girls, and therefore it was considered best to defeat it, not disregarding the interests—real or fanciful—of the girls, but at the same time considering carefully the welfare of the boys.

Dr. J. D. Chason, Bainbridge: In Dr. Champion's paper in regard to the marriage of a young man before he gets well of an attack of gonorrhea, I find that just as many married men infect their wives as young men do their brides—i. e., men who have been married several years. You may tell these married men that they must refrain from intercourse until they are well, but they will never do it. Not one case in twenty will follow instructions in regard to this matter. And as to the patients leaving it to you to be the judge of when they are well, the majority of patients will not do this, as they usually feel that they are competent to judge of their recovery. I find that the trouble is greater among the married men, and legislation cannot reach this class of people. Such things are sacred with the family physician and he dare not say a word. I have never yet been able to say as to how the remedy can be brought about, because exposure of families would result.

Dr. L. G. Hardman, Harmony Grove: I have enjoyed all three of the papers that have been read, and especially so since they have introduced not exactly new thought, but the consideration of matters which have been overlooked and neglected by the medical profession. We have considered preventive medicine along the line of bacteriology, but the great forces of nature have been entirely ovrlooked. The moral and sociological forces which underlie these maters have not been considered. I am glad to see such papers presented to the Association. Until

we go entirely back of these conditions and get at the root of the trouble, we cannot get rid of these things, and until the medical profession realizes that this is the thing to be done we cannot make any substantial progress. I want to endorse all the papers along this line.

Dr. E. J. Spratling, Forsyth: This State does not provide means for the segregation of imbeciles and other defectives, and until this provision is made we cannot expect to stamp out the troubles resulting from a lack of this measure. We must have legislation on this matter before anything can be accomplished. Marriage between these people is not now even discouraged, and in my own town there are quite a number who are bearing children that are a disgrace to the human family. I know of one man who is an epileptic and the father of nine children. Three of them are epileptics, two are weak-minded, and two are deformed, and yet the State does not make any provision against such children as these. As I said before, we will have to get legislation before we can accomplish anything.

Dr. Champion (in closing): I would like to call attention to the point in my paper in which I stated that I did not think that it was opportune for legislation in this matter. From the gentleman's remarks it seems that he is under the impression that I recommended such. And as to married men having gonorrhea, it is frequently due to having had it several years before and they have simply had a relapse, and it is to such cases that I had especial reference, as the facts should be impressed upon these men in the first instance.

Dr. Kime (in closing): I have been studying this question for some time, and while we are not entirely prepared for radical legislation, yet certain lines of thought can be taken up, and after studying them from time to time and

getting committees to work and combining ideas, we can get certain rules and regulations to govern certain things. In some cases direct legislation would be the thing; in others indirect, by going back and making a man responsible for the disease which he transmits. In venereal diseases, for instance, we can make only such laws as make a man responsible for transmitting the disease. As the medical profession is supposed to know more about these things than anybody else, it is our duty to take some action, and it is essential that we have a standing committee from this Association to study the matter from year to year, and bring up those things which will enlighten the members. With this object in view, the Tri-State Association last year appointed a committee, of which I have the honor to be chairman, to take up this matter. It is desirable to get a committee from this Association to work in conjunction with committees from Alabama, Tennessee and the Tri-State Association, and therefore I offer the following:

"Resolved, That a committee of three members of the Medical Association of Georgia be selected as a Sociological Committee, to work in conjunction with a similar committee from the Tri-State Medical Association; said committee to report to this Association from year to year on work accomplished. (Resolution adopted.)

The President appointed on this committee:

Dr. R. R. Kime, Chairman, Atlanta.
Dr. C. H. Peete, Macon.
Dr. A. A. Smith, Hawkinsville.

ACUTE YELLOW ATROPHY OF THE LIVER, WITH REPORT OF A CASE.

T. E. OERTEL, M.D., Augusta,
Professor of Pathology, Medical College of Georgia.

The purpose of this paper is to bring the condition known as acute yellow atrophy of the liver to the attention of the Association, with the hope that others may be stimulated to report any cases of this rare disease that may fall into their hands. Its infrequency and the obscurity which shrouds the etiology of the disease lend additional interest. The following brief notes may serve to refresh the mind upon the salient features of the malady.

Acute yellow atrophy of the liver, general parenchymatous hepatitis, icterus gravis or typhoid jaundice, is defined by Osler as "Jaundice, associated with marked cerebral symptoms and characterized anatomically by extensive necrosis of the liver cells with reduction in volume of the organ."[1] It may be confounded with Weil's disease or with phosphorus poisoning, but usually the correct diagnosis is not attended with difficulty. Rokitansky first studied the pathology of this disease, and on account of the hepatic changes give it the name acute yellow atrophy of the liver, and in 1843 Horaczek published a monograph upon the malady.[2] Since that date about two hundred and fifty cases have been reported. Thierfelder collected one hundred and forty cases and Legg one hundred cases for their respective monographs. Pepper has observed five and Musser two cases in Philadelhpia.[3] Olser in his wide experience has seen but one case and that in a clinic abroad.

Etiology.—Predisposing causes are pregnancy, age dissipation, syphilis, malaria, cirrhosis of the liver, fatty liver and the continued fevers. It is more common between the ages of fifteen and thirty, but no age is exempt.[4] Sixty-five per cent. of Legg's cases were in females. A variety of micro-organisms has been found in the blood or tissues of patients dead of this disease, but none have been proven to be the causative agent. It has been thought by some to be infectious on account of small epidemics observed among soldiers in barracks.[5]

Morbid Anatomy.—The morbid changes in the latter stages of the disease are numerous and marked. There is intense jaundice of the whole body and biliary discolorization of the urine and fluids of the serous cavities. The liver, in cases uncomplicated by hypertrophic cirrhosis, is very much reduced in size, so that it is entirely hidden by the ribs and may weigh no more than 160 grams. The liver is flabby and usually contains brilliant chrome-yellow areas in a field of dusky red, softer tissue. The yellow islands represent the first stages of degenerative process, the hepatic cells in this situation being still more or less intact, while the fields of red atrophy are devoid of parenchymatous elements. The spleen is usually enlarged, dark in color, soft, and may be diffluent. Fatty degeneration of the heart muscle and even of the skeletal muscles is frequent. There are pronounced degenerative changes in the walls of the smaller vessels and the blood itself, and from these conditions arise numerous small hemorrhages from the serous and mucous membranes and into the pulmonary and nervous tissues. The frequent and intense nervous symptoms have been attributed to the latter cause. If the disease is of a bacterial origin it would seem that a toxemia may in part account for them. Auto-intoxication and decreased alkalinity of the blood have been

supposed to account for the delirium or coma so commonly presented.

Symptoms.—The onset may be gradual or sudden. If the former is the case, symptoms of gastro-intestinal catarrh may occur for several weeks before the more serious symptoms cause the true nature of the disease to be suspected. If the onset is sudden there is acute jaundice and nervous manifestations of marked severity. Convulsions or coma may usher in the toxic stage. The hemorrhages into the stomach and intestinal tract give rise to black vomit and dark, putty-like stools. The urine is deeply bile-stained and may contain albumin, casts and renal cells, and in a majority of cases leucin and tyrosin are present and may readily be demonstrated by evaporating a few drops of the fluid upon a glass slip and examining with the low power of the microscope. The pulse usually does not rise above 90, and the temperature may remain at the normal point until shortly before death, and then rise only one or two degrees.[7] Urea is greatly diminished and may be absent from the urine.

Differential Diagnosis.—The history of the case and the more intense gastric symptoms, together with the absence of leucin and tyrosin from the urine, distinguishes phosphorus poisoning from acute yellow atrophy. Hypertrophic cirrhosis presents an enlarged liver, a more constant and higher elevation of temperature, nor do lucin or tyrosin occur in the urine. Weil's disease has an abrupt onset with high temperature, and though the urine may contain albumin and casts the renal symptoms are not so pronounced, and renal lucin and tyrosin are not present. The jaundice in acute yellow atrophy is progressive; the liver is first slightly enlarged and then rapidly reduced in size, and death is the usual result; while in Weil's disease the jaundice is slight and transient and recovery is the rule.[8]

Prognosis.—Death is the usual termination.

Treatment.—Symptomatic.

The following case occurred in my practice at the State Sanitarium, Milledgeville, and was mentioned in the yearly report of that institution for 1896-97:

E. S. Mulatto female, æt. 22, single, multipara; lived with her father and mother and worked about the house and on his farm. Has borne three children. Until present illness in perfect health except for the diseases of childhood. Family history negative. Was brought to the hospital in a farm wagon lying on some straw in the bottom. Her home was twenty miles distant.

Her father stated that about three weeks previous she complained of not feeling well and one week afterward suddenly became violently insane. A physician was called who diagnosticated the case as one of acute mania and after treating her for two weeks directed her removal to Sanitarium.

When received she was in a comatose condition which had persisted for three days past, dorsal decubitus, eyes half open, pupils dilated, conjunctivæ yellow and presenting small hemorrhagic areas, lips parched and cracked, sordes upon the teeth and a bloody saliva dribbling from the open mouth. Face flushed, respiration 40 and shallow, pulse 120 to the minute, temperature 103.2.

On account of her condition only a hasty and partial physical examination was made. This revealed numerous moist pulmonary râles anteriorly and a slightly enlarged spleen that was palpable. The liver dullness was so far decreased that the pulmonary resonance almost merged with the tympanic sound of the intestines, which were evidently overlapping the border of the liver. A small quantity of deep yellowish green urine was obtained by catheter. Microscopic examination showed large numbers

of epithelial casts, renal cells, leucin and tyrosin crystals. Albumin was present in quantity.

Upon the above a diagnosis of acute yellow atrophy was made. A stimulating treatment was resorted to but without avail, the patient dying within two hours after admission.

A synopsis of the necropsy notes follows:—

E. S. Mulatto female, æt. 22. Time of death 2 p.m., September 17, 1896. Time of section 3:30 p.m., September 17, 1896. Height 174 cm. Body is that of a well-nourished female of fine physique. Rigor mortis absent. Skin light in color and intensely yellow.

Head.—Tissues moist and bile-stained. Dura mater slightly thickened and contains two bony spicules. The pia-arachnoid is thin, smooth, vessels engorged. There are no hemorrhagic areas either in the membranes or the cerebral substance. The latter is of good consistence, moist and yellowish, and weighs 1,170 grams. No microscopic changes are noted.

Chest and Abdomen.—The usual incision reveals a considerable amount of adipose tissue and thick muscular structures. The great omentum extends to the pubes and contains considerable fat. The intestines are slightly distended and lie in their normal positions. The lower border of the liver corresponds with the lower border of the sixth rib in the mammary line. All the tissues are of a uniform yellow color. The lungs nearly fill the pleural cavities, which are moist and smooth.

Pericardium.—Is thin and contains about 10 cc. of very yellow, watery fluid.

Heart.—Normal in position, well covered with yellow fat, the right ventricle flabby, the left contracted. The valves show no changes and are competent. The myocardium is soft, yellow and greasy. Weight 250 grams.

Left Lung.—Slightly bile-stained, visceral pleura

smooth and moist, in general air-containing and light in color. The lower lobe is darker, heavier and contains less air. Over the surface are many purplish spots, slightly raised, soft, and about 3 mm. in diameter. Weight 310 grams. Upon section, the upper lobe is comparatively dry, pinkish in color and moist. Particularly in the lower lobe are numerous dark red areas about 3 mm. in diameter. They present the appearances of small hemorrhages.

Right Lung.—Similar to left except that it is more solid and the lower lobe darker and devoid of air. Upon section, watery blood-stained fluid flows in quantity from the cut surface. Weight 650 grams.

Spleen.—Measures 14 x 7 x 2 cm. Weight 160 grams. Dark slate color. Capsule smooth, consistence decreased. On section, very moist, almost black in color. Malpighian bodies cannot easily be made out. Pulp easily scraped free.

Left Kidney.—Measures 11 x 7 x 4 cm. Weight 180 grams. Consistence good. Very pale, capsule strips with some difficulty and portions of the parenchyma adhere to it. The surface thus exposed is in general pale yellow with reddish mottling, greasy to the touch and moist. Upon section, the cut surface is moist, bloody and the cortex pale and puffy; the pyramids mahogany color and sharply outlined.

Right Kidney.—Measures 11 x 6 x 3 cm. Weight 150 grams. General characteristics like the left.

Urinary Bladder.—Contains about 5 cc. of thick, deep yellow fluid.

Uterus.—Is that of a multipara and shows no changes.

Duodenum.—Contains a quantity of dark-brown semi-fluid material. No gall can be expressed from the orifice of the common bile-duct. The common duct being laid open is found to contain no gall, being occupied by a plug of thick, yellowish mucus.

Stomach.—Contains about 100 cc. of black, partly

coagulated material which is evidently blood. The mucosa is covered with a black coagula, and there are here and there a few ecchymotic spots about 4 mm. in diameter. In general the mucosa is very pale and the muscular walls relaxed.

Small Intestine.—Contains much light yellow mucus. The vessels of the mucosa are injected, but there are no hemorrhages.

Large intestine.—Contains a considerable amount of dark-colored soft material and partly digested food. Mucosa deeply injected and covered with punctate hemorrhagic areas.

Liver.—Measures 21 x 13 x 5 cm. Weight 750 grams. Consistence much decreased. Capsule smooth; the whole surface in general is purplish and studded with raised, quite firm, yellowish areas varying in size from 2 mm. to 2 cm. in diameter. These are slightly elevated and are firmer than the surrounding surface, which is dusky red and flabby. In the yellowish areas the outlines of the liver lobules are plainly visible, while the red portions seem to be structureless except for the blood-vessels that here and there persist. The gall-bladder is distended by thick, greenish gall.

MICROSCOPICAL EXAMINATION.

Heart.—The cross striations show poorly or not at all; muscle bundles seem to be swollen.

Lung.—There are numerous hemorrhagic areas one or two mm. in diameter. In these situations the alveoli are for the most part distended with red blood-corpuscles. In other air sacs are large numbers of leukocytes, most of which are of the polymorphonuclear type. The hemorrhagic areas show much free and interalveolar brown pigment. Pigment granules are also found in quantity occupying the endothelial cells of the larger vessels. The

bronchi show swelling and desquamation of the columnar cells of the mucosa. The alveolar walls show no changes though their capillaries are in some instances distended with red blood-corpuscles.

Spleen.—In a condition of intense congestion. With the lower power it is seen that the trabeculæ are of normal frequency and dimensions; the Malpighian corpuscles are small and poorly outlined. The characters of the spleen pulp are almost obliterated by the blood present. The various sinuses are well marked, their boundaries being shown by bands of connective tissue covered with lymphoid cells. The blood is well preserved. Black pigment granules are present in large numbers in the free blood.

The high power confirms the above. The pigment is for the most part free. It consists of small granules or masses of granules, and is universally present except in the Malpighian bodies and trabeculæ. There are instances of pigmentation of cells, mostly polymorphonuclear leukocytes.

Kidney.—The glomeruli are large and swollen and their capsules are slightly thickened and show one or more layers of proliferated epithelium. Frequently the capsule contains a granular or fibrinous detritus. This is in most cases evidently due to necrosis and disintegration of the cells covering the capillary loops of the glomeruli, portions of the loops being denuded. The epithelium is swollen and necrotic; shows an intense fatty degeneration appearing in the form of droplets of fat of varying size, lying within the protoplasm of the cells. The blood-vessels are distended with blood, and here and there may be seen interlobular hemorrhages. Many of the tubes and capillaries are filled with peculiar bodies, possibly protozoa. They vary greatly in size and shape. The smaller ones are about the size of a red blood disc and have a small, round, densely stained nucleus. The larger ones often

occur in masses blocking the lumen of a tubule or a capillary. They are irregular and lobulated, each lobe or bud possessing a nucleus. The nucleus stains deeply, the protoplasm more faintly with hematoxylin.

Liver.—The liver shows two kinds of structures, the first islands of hepatic cells in which the liver cells are in stages varying from normal to an intense fatty degeneration, or even necrosis and fragmentation. The more severe changes occur at the periphery of the islands. Proliferation of the intercellular connective tissue is marked, and there are present numerous small, round, dark-staining cells, evidently lymphocytes.

The above areas are surrounded by a dense new connective tissue stroma in which lie many tortuous bile-ducts. Groups of the latter are accompanied by a round cell fibration, and in their neighborhood the connective tissue is more dense than elsewhere.

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TETANUS: REPORT OF CASE—INTUBATION.

JAS. T. ROSS, M D., Macon, Ga.

On January 21st this year, I was called in consultation by Dr. W. H. Whipple to see Mr. F., a young man of 18, tall and muscular.

On January 1st he had had the distal phalanx of middle, ring and little fingers of right hand blown off; the entire palm being lacerated, exposing tendons. Stitches still remained in fingers. For a week previous to my visit he had had what was termed "nervous phenomena." For some minutes I noticed rigidity of entire muscular system occur at intervals of one and one-half to three minutes, lasting from 10 to 30 seconds. Pulse and temperature were normal, and the young man ready to joke. The fingers and wrist were tightly flexed, and any attempt at extension provoked more and more rigidity of muscles.

I gave my diagnosis of pronounced tetanus, and, at the request of Dr. Whipple, advised the father of his son's serious condition.

I suggested the use of P. D. & Co.'s Antitetanic Serum, which was begun at intervals of eight hours, afterwards increased to every four hours, and left off at intervals of eight hours on the eleventh day. Morphine hypodermically one grain during the first twenty-four hours, increasing gradually to as much as 4 1-2 grains on the ninth day, together with chloral hydrate and potassium bromide given per orem.

During the first twenty-four hours chloral 1-2 dram,

sodium bromide 1 dram being given. This quantity being increased to as much as 1 1-2 drams chloral and 3 drams sodium bromide on the eighth day. After which time both morphine and sodium bromide were reduced as rapidly as possible. Kasagra and Hunyadi water were employed to keep bowels open. For several days catheterizaton was required. At no time was thirst excessive; mind clear, except from opiates.

Deglutition difficult and accomplished for a time only when held erect. Appetite good throughout attack. Diet, milk and hominy. All symptoms were worse for five days after beginning treatment, and then gradual improvement until fully recovered by February 10th.

I have been told that this is the first instance in which Antitetanic Serum has been employed in the South. How great was its value in this case is indeed debatable; but the length of time tetanus had existed before its employment, the severity and persistence of the symptoms, force me to attribute to it much credit for the successful termination of the case. Only a slight rash followed its use.

Of one thing I am certain, it did no harm. Should necessity demand, I should use it again. If it be my misfortune to have or see another case of tetanus neonatorum, I shall use or recommend its employment.

INTUBATION.

I cannot remember ever not to have loved little children. As I grow older my interest deepens and my desire to do something for their welfare increases. I am glad they are not burdened with care, and were it in my power they should never experience pain. To enter a plea for them I venture to offend even this body of learned men by saying nothing new upon a subject old, perhaps, but one in which I would it were possible for me to arouse much interest—interest even unto action by all.

When a boy as I accompanied my dear old father, as he drove about in his ministerings to the old and young, it was with horror I witnessed the choking, even unto death, of more than one little innocent, with what was then known as membranous or true croup. Then, if purgation, emesis and stimulants failed to relieve, nothing was left to do but cut; or stand by and see the little spirit take its flight.

Thanks to O'Dwyer for perfecting what Bochuet first did, we have another means than tracheotomy at our command for not only giving relief, but often saving life—especially so now, since grateful hearts can praise the givers unto us of antitoxin.

Intubation gives us time in which to combat disease with remedies in themselves powerful, but often absolutely helpless without time to exercise this power. Intubation relieves that strain, that work harder than "mauling rails" —for the sufferer cannot rest, dares not pause—almost instantly; antitoxin requires at least several hours.

Statisticians furnish us with comparative results for tracheotomy and intubation; all show better results, especially in the young, in the employment of the latter.

Dr. Dillon Brown, of New York, from whom I received instructions in the winter of 1891, gives us percentages of recoveries to April 1, 1897, as follows:

Four hundred and forty-two cases of intubation, without calomel sublimations or antitoxin—27 3-10 per cent.

Two hundred and ninety-five, with calomel sublimation —41 6-10 per cent.

Sixty-nine, with antitoxin—67 9-10 per cent.

Further, he says: "During the first year with antitoxin 38 4-10 per cent., during second year 62 9-10 per cent., and during the third year 94 7-10 per cent. recovered"; and then he adds: "The apparently bad results during the first year were probably due to two causes, in-

ferior antitoxin serums and insufficient doses. Is this not enough to inspire in each of us a desire to use antitoxin in plentiful doses, without fear, and learn to do intubation?

Because you live in the country is all the more reason, my brother, why you should know how to introduce a tube. You have not some one in the next block to whom you can telephone to come hurriedly to your aid; and you would be lucky indeed to be able to get help in time from a neighboring city.

Macon is a right large place, even though some may differ in this belief, and yet Dr. C. H. Peete is the only other man beside myself whom I know can and has done intubation. On this very account some ladies have said to me: "It is a sin for both of you to leave at once."

It is not so hard as you may think to learn to do intubation: I learned how—so can you. It is more easily done than tracheotomy, in which—unless your patient is moribund—you need at least two skilled assistants. More frequently than otherwise I have introduced a tube with only mother and grandmother as my assistants.

Read the technique of the operation in your surgery of recent date, and then forget as nearly as possible all the minutiæ about holding your "introducer" "just so," introducing the tube "exactly in the median line," etc. Remember the larynx is only a tube—a joint of a fishing pole, if you like—with a flap over it, that is secure on the side next to you; run your finger a little beyond the end of that flap and pull it towards you; still holding it up, slip your finger a little to one side and introduce the point of the tube along the point of the finger into the larynx, and the work is done—a most distressing symptom relieved.

It is not necessary that you go to New York to learn on a cadaver. Do as I know a young physician in Florida to have done: give a negro five dollars to come to your office daily and try until you learn. He did this, and has since

saved the lives of more than one. "Do thou likewise," and besides the pleasure to yourself, receive the gratitude of loving parents.

I would that our medical colleges would see to it that every graduate can and has done intubation.

A few words of admonition: Unless you can remain constantly at the bedside of your little patient do not remove the string from the tube; it will do no harm. I have left it as long as six weeks without the least bad symptom; but for its presence my first successful intubation would have been a failure. Its presence enabled the mother to ward off impending death.

DISCUSSION ON DR. ROSS'S PAPER.

Dr. St. J. B. Graham, Savannah: I want to congratulate the doctor on his forcible paper, and especially one thing, and that is, in giving a large amount of antitoxin. Doctors have been prone to give the antitoxin in too small doses. Give it plentifully. I have had the good fortune to be called early in all my cases of diphtheria, and I have never found it necessary to do intubation in a case of diphtheria. I learned how to do the intubation but have never had any need for it. As to the diagnosis of diphtheria, I do not call apthous stomatitis and similar conditions diphtheria. When you find that grayish white membrane with the bluish edematous line surrounding it and the temperature and prostration accompanying it, the best thing to do is to give the anti-diphtheritic serum, and give it plentifully. I was called in to see a woman not a great while ago of about 40 years of age, and there was a thick membrane with the edematous line, and a temperature of 105, and I did not wait more than half an hour to get 4,000 units of the antitoxin and gave it to her in the back. I went back in one hour and gave 4,000 units more, and continued this until I had given 25,000 units of the anti-

toxin within twenty-four hours. She then went on to recovery, but had paralysis of the throat. Giving all this antitoxin I think saved her life. Her temperature began going down soon after I started the antitoxin, and I kept on giving the antitoxin until the temperature was down almost to normal. To give the antitoxin in large doses, and to continue giving it until the temperature comes down, is the thing to do, in my opinion, and also that of others. I am not afraid of diphtheria with antitoxin. This patient developed the post-diphtheritic paralysis, and I did the best I could for her, but she decided to change doctors. She got another doctor and he told her that the antitoxin gave her the paralysis, but he failed to do her any good and she got a second doctor, and finally came back to me. It is claimed that croup in fowls will produce diphtheria, and the woman said that she had had a rooster which had a membrane hanging from its throat. I believe that if this woman had not been given the antitoxin that she would have died. When you give the antitoxin you will see the membrane begin to curl and the bluish edematous line begin to fade away, and when this takes place you will know that you have enough of the antitoxin, and by and by when the patient coughs the membrane will come away and the patient gets well. I never use anything else but the antitoxin.

Dr. William Z. Holliday, Augusta, Ga.: I desire to add my testimony to the value of antitoxin in the treatment of diphtheria. I speak from the standpoint of a former skeptic. For a long time I did not use it because I believed it was more likely to produce disatrous results than the disease itself. The first case in which I administered antitoxin was one in which two other physicians agreed with me in the opinion that death was absolutely inevitable, so I had nothing to lose. In this hopeless condition the toxins of the disease were un-

questionably counteracted to an appreciable degree. The patient died, and I have always regretted not having administered this only antidote earlier. I have since given it to all cases and have gotten good results. I indorse fully what Dr. Ross says of intubation in laryngeal cases.

Dr. Doster: Did I understand Dr. Graham to say that the antitoxin produces an edema around the membrane?

Dr. Graham: I said that surrounding the grayish-white membrane along the tonsils and pharynx there is an edema which is almost purple in color, and in giving the antitoxin you will notice that the grayish-white membrane begins to curl and this edema fades away. The value of the antitoxin is simply a question of beginning its use early. The toxin is so great that after three or four days pathological changes have taken place which nothing can remedy, but if we use the antitoxin early before these changes have taken place, then we can expect good results.

Dr. Ross: I cannot agree with Dr. Graham that the antitoxin will not do any good after three or four days. I have seen a case which had been sick for a week, and I was told that the child would die before I could get there. After reaching the case I found that it was a nasopharyngeal attack, and it seemed that the child would die in a few minutes after I got there. The child was two months old, and I started with 2,000 units and continued its use until I had given as much as 15,000 units. After each injection the child would become perfectly quiet and the skin get rosy, and it went on to recovery. I want to stress the intubation more than the antitoxin, as it is very simple and affords certain relief where it is needed.

SOME OBSERVATIONS IN A SERIES OF FIFTY CASES OF MALARIA.

E. E. MURPHEY, M.D., Augusta, Ga.

I have the pleasure of laying before you the results of the microscopical study of fifty cases of malarial fever occurring during the past year in the hospital wards and polyclinic in this city.

Since the clinical aspects of malaria are thoroughly familiar to all of you, I shall deal only with its parasitology as manifested in these cases.

The examinations were practically all made from fresh spreads, but in a few instances preparations stained with carbol-thionin, or Jenner's Fluid, were used. Whether or not the doctrine of the plurality of species of the malarial organisms shall finally be accepted, I shall, in this paper, refer to the tertian and estivo-autumnal types as being easily recognizable and definite forms of the parasite. Of these fifty cases the blood in thirty was found to contain the estivo-autumnal organism; in twenty, the tertian.

No cases of quartan fever have ever come under my observation in this section of the country. No month, from May to February, has passed in which one or more cases of fever have not been encountered; the number of cases being distributed as follows:

TERTIAN FEVER.

May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	
2	3	0	5	4	2	2	1	1	2	Total—22

ESTIVO-AUTUMNAL FEVER.

May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	
0	0	3	6	7	6	4	2	0	2	Total—30

TERTIAN FEVER.

Case 1. May 10th, 1900.—White male, 22 years old. Single tertian infection. Examination a few hours before a paroxysm showed numerous large organisms completely filling the swollen and decolorized corpuscles. Numerous large organisms, with non-motile pigment were observed, pre-segmenting forms. The fever was of the tertian intermittent type.

Case 2. May 23d.—Negro male, 40 years old. Single tertian. Numerous half-grown bodies, with actively motile pigment. Fever tertian intermittent.

Case 3. June 6th.—White male, 30 years of age. Double tertian. Full-grown and half-grown organisms in abundance, and a few rosettes. Fever quotidian intermittent.

Case 4. June 7th.—White female, 24 years old. Numerous small hyaline ameboid forms and half-grown arganisms. Quotidian intermittent fever, becoming tertian intermittent under quinine.

Case 5. June 7th.—Mulatto male, 36 years old. Single tertian; rather scanty organisms which disappeared from the blood under five grains of quinine. Seven days later patient had a chill lasting over an hour, followed by a temperature of 106 F., with two numerous broods of tertian organisms in the blood. They disappeared permanently after three days continuous administration of quinine.

Case 6. August 22d.—White male, 40 years old. Three distinct broods of tertian organisms; exceedingly numerous. Small hyaline and ring forms, half-grown and full-grown pigmented organisms. Few rosettes. Fever tertian and intermittent.

Case 8. August 22d.—White male, 18 years old. Single tertian. Scanty, full-grown organisms.

Case 9. August 23d.—Negro male, 30 years old. Dou-

ble tertian. Rings hyaline, and half-grown pigmented forms.

Case 10. August 24th.—White female, 27 years old. Double tertian. Half-grown and full-grown forms. Tertian intermittent fever, becoming quotidian after four days, without treatment.

Case 11. September 19th.—White male, 16 years old. Double tertian. Full-grown and half-grown organisms; several rosettes and three flagellating forms. Quotidian remittent fever.

Case 12. September 24th.—White female, 22 years old. Single tertian infection; fairly numerous full-grown organisms. There was no temperature in this case, which had been in the hospital wards for three weeks, suffering only from weakness and severe anemia. Hemoglobin 51 per cent., red 2,400,000. A few normoblasts in the blood. No previous history of malarial infection. The organisms disappeared under quinine, and the anemia promptly yielded to appropriate treatment.

Case 13. September 25th.—White male, 56 years old. Single tertian; moderate number of full-grown organisms. Patient suffering from uremia, and organisms discovered in routine examination of the blood. Irregularly remittent.

Case 14. September 24th.—White male, 27 years old. Double tertian. Full-grown and half-grown organisms. Quotidian remittent fever, becoming intermittent under quinine.

Case 15. October 3d.—White male, 35 years old. Single tertian. Nearly full-grown pigmented organisms. Tertian intermittent fever. Patient admitted to the hospital some weeks previously suffering from dysentery. Blood examination at that time negative; later, a sudden rise of temperature to 105 F. caused a reexamination of the blood, with the result above stated.

Case 16. October 16th.—White male, 17 years old. Double tertian. Small hyaline, and half-grown forms numerous. Fever quotidian remittent, changing to tertian intermittent before finally disappearing.

Case 17. November 1st.—Negro female, 20 years old. Double tertian. Full-grown and small pigmented forms. One flagellating form. Quotidian remittent fever.

Case 18. November 13th.—White male, 13 years old. Double tertian. Half-grown and small hyaline forms. Many pigmented leukocytes. Quotidian intermittent fever.

Case 19. December 2d.—White male, 45 years old. Single tertian; scanty organisms. Tertian intermittent fever.

Case 20. January 11th.—White male, 4 years old. Double tertian infection. Numerous large and small pigmented forms. Quotidian intermittent fever.

ESTIVO-AUTUMNAL FEVER.

Case 1. July 6th.—Negro male, 35 years old. Numerous small ameboid forms, having signet-ring appearance. After one week crescents, ovoids and round forms in the blood.

Case 2. July 7th.—Negro male, 18 years old. Crescents and ovoids only. Low remittent fever.

Case 3. July 8th.—Negro male, 23 years old. Small rings, and after two days small pigmented forms. Remittent fever.

Case 4. August 9th.—Negro male, 40 years old. Small ring forms only.

Case 5. August 4th.—Negro male, 35 years old. Small rings and small pigmented forms. Quotidian remittent fever.

Case 6. August 22d.—White female, 18 years old. Small ring forms only. Quotidian intermittent fever.

Case 7. August 24.—White male, 20 years old. Small hyaline ring forms only. Quotidian remittent fever.

Case 8. Negro female, 13 years old. Numerous small pigmented forms. Temperature record not obtainable as patient was seen only once, but stated that there were slight chills and exacerbation of temperature every afternoon.

Case 9. August 26th.—Negro male, 25 years old. Numerous ovoids, and large pigmented forms. No temperature.

Case 10. September 1st.—White male, 28 years old. Small ring forms, much free pigment. No temperature.

Case 11. September 1st.—Exactly as above.

Case 12. September 5th.—Negro male, 40 years old. Large number of ring forms, ovoids and crescents, and pigmented leukocytes. Patient comatose when first seen. Remittent fever.

Case 13. September 7th.—Negro male, 25 years old. This case has already been reported as No. 3 of this series. He returned to the hospital on this date, comatose, and with a temperature of 101 F., with hemoglobinuria. An examination of his blood showed numerous pigmented organisms, about half filling the corpuscles; highly refractile, with the pigment aggregated into a single block, eccentrically placed; also a few crescents, and many spheroidal forms. Death after three days, with subnormal temperature a greater part of the time.

Case 14. September 8th.—Negro male, 27 years old. Numerous small pigmented forms only. Quotidian intermittent fever.

Case 15. September 11th.—Negro female, 25 years old. Small rings only. No temperature at all.

Case 16. September 17th.—White male, 30 years old. Ring forms only. Quotidian intermittent fever.

Case 17. October 4th.—White male, 42 years old.

Crescents and ovoids only. No elevation of temperature above 99 F. Taking quinine before admission.

Case 18. October 17th.—White male, 25 years old. Ring forms only; persisting in blood apparently unchanged under administration of quinine. Quotidian remittent fever, becoming intermittent.

Case 19. October 23d.—White female, 29 years old. History of chills and fever at intervals for three years. Spleen reaches median line, and extends 9 cm. below costal margin in anterior axillary line. Seized with severe paroxysms at 4 a.m., October 23d. Vomiting and nausea severe. Vomit intensely bile-stained—sudden intense jaundice, conjunctiva rhubarb color. Hemoglobinuria. Temperature 105 1-2 F. Death at 4 a.m. next day. No organisms demonstrable in blood. A few pigmented leukocytes.

Case 20. October 24th.—White male, 13 years old. Numerous rings persisting apparently unchanged for four days; later, ovoids, crescents and numerous flagellating organisms. Quotidian remittent fever, becoming intermittent later in its course.

This case returned to hospital November 12th, with double tertian fever, and is reported as case 18 of the Tertian Series.

Case 21. October 26th.—White male, 25 years old. Small hyaline ring forms. Quotidian intermittent fever.

Case 22. October 26th.—White male, 23 years old. Blood findings exactly as in preceding case. Quotidian remittent fever.

Case 23. November 5th.—White male, 30 years old. Ovoids, crescents and flagellating forms. Low remittent fever.

Case 24. November 13th.—Negro male, 27 years old. Numerous ring forms. Quotidian remittent fever.

Case 25. November 17th.—Negro female, 40 years old.

Admitted to hospital comatose, and died before an examination could be made. Autopsy showed many organisms of estivo-autumnal type in all stages of development, and an enormous quantity of free pigment in liver and spleen; also many large and small phagocytes containing organisms, fragments of blood corpuscles and pigment. Many organisms in the glomeruli of the kidneys.

Case 26. November 20th.—Negro male, 20 years old. Scanty small pigmented forms. No temperature chart.

Case 27. December 5th.—White male, 35 years old. Numerous small hyaline and pigmented forms. Quotidian intermittent fever.

Case 28. December 16th.—White male, 25 years old. Crescents and ovoids only. Patient taking quinine before blood examination.

Case 29. February 13th.—Negro male, 32 years old. Ovoids only in blood. Previous history of malaria in October last.

Case 30. February 14th.—White female, 32 years old. Small ring forms, rather scanty. No previous history. Quotidian intermittent fever.

Both types of infection are to be found in this locality at, practically, all seasons of the year—their period of greatest prevalence being from July till November. The tertian cases occur mainly among the whites; the estivo-autumnal, in large majority, among the negroes. Two factors may probably explain this apparent discrepancy: First, the fact that many of our negroes work in the river swamp all day, returning to the city to sleep, and are consequently exposed more often, and for a greater length of time, to the possibility of infection in regions known to be highly malarious. And, second, that the negroes regard ordinary tertian so lightly that they seldom take medical advice therefor.

Among the series of tertian cases above reported there is little that is worthy of note except that five cases—Nos. 11, 13, 14, 15 and 16—were all developed in the same hospital ward, in beds adjoining, or very near to one another, in patients who were admitted suffering from some complaint other than malaria; the inference is that they were all exposed to the same conditions, or else that the disease was transmitted in some way from one to another. There were no mosquito nets in this ward, and mosquitoes of an undetermined species were at the time fairly plentiful and energetic. It seems significant that patients and members of the house staff, whose rooms were on the same floor, very near to this ward, and who drank water from the same source, did not, in any instance, contract malaria.

The earliest forms of tertian parasite, with hyaline bodies, cannot be, with absolute certainty, distinguished from similar stages of the estivo-autumnal parasite; although they seem to show certain fairly definite points of difference. These tertian bodies are less refractile, somewhat larger, do not, as a rule, show a typical signet-ring appearance, and become pigmented much earlier than do the estivo-autumnal forms. Moreover; the early pigmented forms of tertian fever are generally more actively ameboid than are the corresponding phases of the estivo-autumnal parasite. I have not in any one of these cases seen more than one young tertian parasite in a single corpuscle; whereas, multiple infection of a corpuscle was noted with frequency in the estivo-autumnal cases.

There seems to be a constant difference in the color of the pigment granules in the two forms of parasite—the tertian pigment being recognizably lighter, and of a yellowish brown color, while in the very youngest forms of estivo-autumnal parasites the granules, while exceedingly minute, are of a dark brown—sometimes almost black—color.

The swelling and decolorization of the infected cor-

pusele in the cases of tertian fever were most marked—even from the very beginning; while those corpuscles which were infected in estivo-autumnal forms were shrunken and brassy in color.

The ease with which the tertian infection yielded to quinine was in striking contrast to the resistance offered to that agent by the estivo-autumnal forms. In one of my cases of single tertian fever, the administration of five grains of quinine caused a disappearance of the organisms from the blood for a period of seven days.

Presegmenting forms, large forms in which there appear a number of clear, refractive, nuclear bodies resembling vacuoles, were found in the majority of cases examined at or about the time of paroxysm, and rosettes, with 18 to 20 segments, were observed with considerable frequency.

At times there were noted free in the blood stream small hyaline bodies closely resembling the first stages of a parasite; but the possibilities of error are so great that no definite interpretation was placed upon them.

The most striking features in the series of estivo-autumnal cases was the persistence in the blood of the small ring forms, apparently unchanged for a number of days, without other forms being present. In one case these persisted for five days, with quotidian remittent fever. This, and other similar observations, impel me to the conclusion that it is not possible to determine the cycle of this parasite from a study of the organism in the peripheral circulation. There were no segmenting forms in any of the preparations made of the thirty cases above cited. It seems to me probable that these rings in the blood simply represent a daily influx of young forms from the viscera, where the reproductive changes in the organism are taking place. Dr. Ewing, in reporting a series of cases among the soldiers at Montauk Point, states that in six cases it

seemed impossible to find any marked change in the size of the parasites in the peripheral blood for three days after the chill. Golgi, quoted by Ewing, in discussing the same question, states: "The parasites in the blood of estivo-autumnal cases are only an index of the infection —have little to do with the real pathogenesis of the fever, and that they represent early phases of a cycle which is much longer than has been believed."

Nothing that has come under my observation has led me to concur in the division of the estivo-autumnal parasite into two species—quotidian and malignant tertian—a differentiation insisted upon mainly by Marchiafava, Bignani and other Italian observers. In fact, it is not an uncommon thing to notice a change from quotidian to tertian fever in the same infection, and none of these cases cited above were associated with a true tertian temperature curve.

Ovoids and crescents are seen late in the infection, and are now regarded as representing forms designed for the continuance of the species outside its present host. Many of the coccidia are known to possess a double cycle of development—one asexual, a sporulating cycle—the other, asporulate, and leading to the formation of crescentic and flagellating forms. The observations of MacCullum and others with the pigmented organisms of birds (Halteridium), show that the flagellating bodies are the male elements, these flagella breaking off, uniting with and fertilizing the female elements.

It is by no means uncommon to see these crescents alter their shape materially while under observation, becoming ovoid or spheroidal, and from these forms flagella have been seen to arise. In a number of cases in the above series crescents and ovoids have been seen to persist for a week or longer after all elevation of temperature has ceased.

Phagocytosis was more frequently observed in the estivo-autumnal cases. In many instances I was able to observe

the process going on, and to note the persistence of movement in the pigment of the inclosed organisms for hours after it was engulfed.

There have been in this series no cases of mixed infection with the two forms or organisms under discussion, although such cases have been observed here.

While not committing myself to a belief in the unity of species of the malarial organisms, I cite two instances here for what they are worth, and leave it to you to draw your own inferences.

Case 20, estivo-autumnal series, returned to hospital in November with a double tertian infection; and Case 28, estivo-autumnal series, showed a numerous tertian infection in February of this year. Just here it is well to quote the opinion of Marchoux, who has studied the parasites in Senegal: "He believes that during the rainy season, in susceptible individuals, the cycle of the malarial parasites in Senegal lasts twenty-four hours at the height of the season, but varies in different cases. In Europeans it tends to shorten, and the fever becomes remitted or continuous. In the dry season the cycle is longer, and the volume of the parasite increases. In many patients, with a history of old seizures, who have acquired some immunity, the parasite increases in size, and at length, he says, becomes identical with the mild tertian species. During the rainy season, when the newly arrived Europeans are suffering from infection with the small ring form, the native muleteers, when attacked, all show the large tertian forms in the blood."

Ziemann's observations led him to conclusions very similar to those of Marchoux—viz., that the morphological peculiarities of the parasites may be altered by change of climate and differences in individual susceptibility.

In conclusion I can do no better than quote again from the able monograph of Dr. Ewing, Professor of Pathology in Cornell University, who says: "Whichever theory may

be finally established regarding the varieties of the human malarial parasite, the evidence would seem to justify the opinion of Kruse, Canalis, Celli, Danilewsky, and others, who regard the existence of several species as not yet proven, and who find, not only in malarial parasitology, but especially from comparative biology, that the phenomena of the disease are more easily reconciled with the existence of a single polymorphous species. Certainly in many ways the knowledge of the disease would be furthered by adherence to the unicist theory as a practical working basis."

THE ANTISEPTIC AND ELIMINATIVE TREATMENT OF TYPHOID FEVER.[1]

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In presenting this the third consecutive paper on the same subject to this Association, an apology might be necessary but for the fact that the truth can not be repeated too often.

The modern tendency to investigate so closely the habits and pedigree of the different bacteria, it seems to me, is largely supplanting the investigation of the real condition of the patient, and it is a tendency against which the intelligence of the future will cry out in no uncertain terms.

It is generally admitted that we are constantly surrounded by a variety of these disease-producers; even the air we breathe, the water we drink and the earth we tread are but the natural habitats of these micro-organisms. Every human being probably carries within his own person some one of the different varieties of these germs in sufficient number to produce an infection, yet how many human beings go through a comparatively useful career without ever succumbing to their baneful influence. Now what does this teach? It means there are other factors in the production of this disease than the germ itself, and this factor, in my opinion, to a great extent is autointoxication—a practical fact which surgeons have recognized and heeded by a thorough preparation of their patient before an operation. They thoroughly purge the patient and see that his skin, kidneys

and liver are acting freely, thus eliminating all of the effete material and chemical products of tissue changes constantly going on in the human organism.

Park in his surgery goes so far as to say that "in addition to purgatives, drugs like salol, charcoal and salicylates should be administered" as intestinal antiseptics. Many uremic accidents supervening after surgical operations may be atoned and the condition made to pass away by internal administration of naphthalene and charcoal.

Putrefaction of intestinal contents, to my mind, affords a most prolific source of autointoxication. If an attempt at intestinal antisepsis is so desirable before surgical operations, how much more so does it become in an acute infectious disease with its principal seat in the bowels. Here all the conditions favor putrefaction, the presence of bacteria, peptone, heat and moisture, with diminished biliary and intestinal secretions, as a result of fever. With the expectant or "do-nothing" plan of treatment and its accompanying constipation and tympanites, the result of putrefaction, the wonder to me is that more patients do not succumb to perforation and hemorrhage—and it certainly speaks volumes for the resisting power of nature.

In a bowel whose walls are already weakened by ulceration, common sense dictates that by allowing it to become filled with putrefying material, distended with gas as a result, we have the most favorable condition for perforation or rupture of the weakened wall of an artery. Compared to danger like this, the insignificant disturbance produced by mild purgation is but as "the roar of a meadow brook to the wild tumult of a mountain stream."

When we stop to think that there is enough poison produced in the human system in a few hours to destroy life if retained, it requires no prophetic vision to predict that the day is near at hand when the general practitioner will abide by the common sense rule of the surgeon and use the alimen-

tary canal for what nature largely intended it—a sewer to drain from the system the toxins, effete material and other obnoxious products.

Nature intended the bowels to act in health, and if constipation is bad in health, it is worse in disease. It is superfluous to repeat here what I have stated in previous papers, and that is, that I know that you cannot render the alimentary canal aseptic by the administration of drugs, but the man who fails to give some one of the intestinal antiseptics in typhoid fever is derelict in his duty in not using the resources at his command for the benefit of his patient.

Dr. Osler, who has been the most outspoken opponent against this treatment, and maintained that intestinal antiseptics were useless and should not be administered in typhoid, at the same time highly extols Urotropin to disinfect the urine. If you can disinfect an excretion like the urine by administering antiseptics internally, why won't the same drug destroy the micro-organism in the bowel, the blood or any tissue of the body? Why does the drug possess more antiseptic power when in the urine than it would in the blood?

Is it not more rational to say that a drug given internally is more likely to destroy a bacillus in the bowel than to say it will destroy it after being excreted in the urine, and when Dr. Osler recommends Urotropin to disinfect the urine, he contradicts himself in his argument against intestinal antiseptics, and consequently his logic is false.

There are a number of drugs which can be given in harmless doses that will prevent fermentation and putrefaction of the bowel contents, and consequently the formation of gas. Park says: "Man forms in his liver enough poison to kill him in eight hours, and the urine eliminates but one-half." Bile is nine times as poisonous per volume as urine. Does this not show to any unprejudiced mind the importance of

keeping the secretions and excretions in an active condition?

We all know that in fever destructive tissue metamorphosis is taking place more rapidly than in health. More poisons are being manufactured and at the same time, as a rule, functional activity of the emunctories—the liver, kidneys and skin—is lessened; consequently we have the abnormal condition of increased production of poison and diminished elimination, and hence the therapeutic indication becomes very plain. If elimination from the system of these poisons is so necessary in health, how much more necessary does it become in a disease produced by a germ which is constantly manufacturing toxins of unknown chemical composition and lethal power, and sending them to every part of the human system through the medium of the circulation and lymphatic current.

The bacteriologist tells us it is not the germ itself which gives rise to the symptoms, but it is the poison produced by the germs (toxins), and this exegesis of the subject is largely borne out by the fact that few germs are found in the blood; consequently some other agent must be the active factor in the production of symptoms.

Horton-Smith, in the Gouldstonian lectures, showed that "in twelve cases of fatal typhoid fever coming to post-mortem examination, the blood in five was sterile; in two it contained typhoid bacilli; in one streptococci and staphylococci; in two the bacillus coli and in two the bacillus coli with proteus." Out of thirty cases, including his own, the typhoid bacilli was found only in nine. These observations certainly prove two conditions which are, first, that the patient may die with typhoid fever and no germs can be found in the blood, and the other, that of the different varieties of germs found in the blood after death in typhoid fever patients, the bacillus of Eberth is found in less than one-third of the cases and other germs of the different varieties are

found in two-thirds of the cases. This element of mixed infection is, in my opinion, responsible for the great variation in symptoms in this disease and accounts for that significant fact which we often hear from physicians, that they scarcely meet with two cases presenting just exactly the same clinical aspect. It is also a forecast of the difficulty we will meet with in attempting to get a successful antitoxin for typhoid.

It remains for the physiologic chemist to supply the missing link and bridge the chasm which now exists between the established bacteriologic science and a rational and scientific therapy. Every new discovery is attended with its accompanying evil, and the glaring one connected with the valuable enunciation of Koch and Lister is the fact that it has resulted in the production of so many therapeutic nihilists. Some of the best men in the profession, in their eagerness to join the procession in the study of these new and fascinating causative factors of disease, have overlooked the importance of the thorough knowledge of the physiologic and pathologic chemistry of the human system. The time is now ripe for the pendulum to swing in the opposite direction and let us learn not only of the products of the germ, but the complex chemical poisons which are constantly being generated in nature's own laboratory, the human system, a thorough knowledge of which the general practitioner is now seeking, and which will result in the solution of some of the intricate problems of modern medical science. In this connection I desire to present a few clinical facts which show the ridiculous absurdity of some modern theories regarding the administration of drugs in infectious diseases. The modern teaching is all to the effect that infectious diseases run a definite and specific course and cannot be influenced by medication. To this oft-repeated error I desire to enter a protest based on clinical experience.

The man who says you cannot favorably influence the lethal tendency of the causative factors in typhoid fever by medication has simply not had experience with the proper drug. He belongs to that class of medical men who consider it unscientific to storm the domain of a bacillus with a dose of medicine and has practically discarded his old friend the "Materia Medica." He contents himself by sitting down by the placid waters of expectancy and watching the life of his patient slowly but surely ebb away as a result, not only of the ravages of the supposed germ which is causing the disease, but the chemical toxins as a result of tissue metabolism as well.

With this explanation of what I consider to be the real condition of the patient in typhoid fever, we will see how we can best meet the plain indication for elimination. Some of those who have opposed this treatment maintain that the germ is found in the walls of the bowels and lymphatic glands and other tissues of the body; consequently it cannot be reached by any drug. If they will but review their Materia Medica, they will find that mercury is absorbed into the blood and carried to the remotest part of the system, and is found in the secretions and excretions, even the saliva, the semen and the milk from the mammary gland. So it is immaterial in what tissue the germ may be found, whether the roots of the hair, the tips of the fingers, the spleen or lymphatic glands, it cannot escape the influence of mercury when given internally.

Is mercury not a specific for that disease which is typical of the class of constitutional diseases, syphilis? In controlling this disease does not mercury go to every part of the system? I maintain it is more rational to attempt to reach a germ and its products in whatever tissue the fancy of my opponents may dictate by the administration of mercury internally, than it is to reach the same by the applica-

tion of cold water to the skin, but it is as important to know how to give mercury in typhoid as it is in syphilis. Bad results will follow improper administration in either disease, but that in no sense lessens the therapeutic value of the drug. I have used and advocated mercury because it has given me the best results. I know of no other constitutional remedy that will thoroughly stimulate the activity of the emunctories.

We should not be wedded to any one drug or combination of remedies, but should constantly keep in view the object to be accomplished, that is elimination. Any harmless procedure that will aid in securing elimination is to be commended. I now use in all my cases, normal salt solution per rectum, and I find it the most efficient means of securing prompt action of the skin and kidneys, and I can not too strongly emphasize the importance of these two emunctories, and especially the kidneys, in typhoid. In profound depression, after hemorrhages and in some cases of low muttering delirium, I immediately resort to the subcutaneous administration of salt solution. I direct that the patient be sponged with water at a temperature most agreeable to him, with brisk rubbing of the skin to stimulate the nervous system. In no case have I had to resort to antipyretics of any sort after two or three days of treatment, and in very few cases is it necessary with this treatment to use alcohol in any form.

Some of the patients go through the disease without the necessity of strychnine. Time forbids me going into details in regard to diet, but as a rule they digest and assimilate more with this treatment than any other plan.

I will briefly repeat the treatment which I recommended in a paper read before this Association one year ago, and I have very few additions to make to the same. When called to a case of typhoid fever, I usually commence by giving the patient a capsule of calomel 1-2 grain, guaiacol carbon-

ate 2 grains, podophyllin 1-40 grain, every two hours for twenty-four to forty-eight hours, depending upon the condition of the bowels. I continue this until I have secured four or five intestinal evacuations for two successive days, and then I leave off the calomel and add 1-2 grain of menthol to the guaiacol and podophyllin. If after discontinuing the calomel there is a tendency (as there frequently is) of the bowels to become inactive, I administer a small dose of salts or Hunyadi water in the morning. I always endeavor to secure at least two or more evacuations daily, depending upon the temperature and condition of the bowels. If after three or four days of treatment, the temperature remains high or rises after having remained stationary, I again resort to the calomel as before for twenty-four hours or less, as necessary, and it invariably reduces the temperature and results in a general improvement in the patient's condition. I continue the administration of guaiacol and menthol throughout the course of the disease.

Guaiacol carbonate, aside from its antiseptic effect in preventing intestinal putrefaction, seems to have some favorable influence over the disease. Its well-known beneficial effect in tuberculosis strengthens the declaration that it would be beneficial in typhoid.

This is the treatment as I use it in the majority of cases, but I wish it distinctly understood that it is not routine, and that the size and dose and frequency of administration must be varied to suit the case and the physician at the bedside must determine this fact.

Now to the point that typhoid can be influenced by medication. I have, up to the present time, treated thirty-five cases without a death and in every single case the temperature reached normal by the morning of the fourteenth day without the use of antipyretics. Some of them as early as the tenth, eleventh and twelfth days.

In a few cases it never went above normal again; in the majority of them it would rise a degree, or perhaps a de-

gree and a half, in the afternoon, but the convincing fact is, that the disease was always under control by the fourteenth day, and its course and severity mitigated.

These are not theoretical deductions reached by following in the footsteps of some erroneous text-book writer, nor have they fallen from the lips of some college professor whose verbosity far exceds his logic, but it is indubitable clinical evidence gleaned from the bedside of the patient.

The fact that in these thirty-five cases there developed no complication during the course of the treatment, is sufficient evidence of its efficacy to convince any unprejudiced mind. Hemorrhage only occurred twice, and then very light. In cases where I have been called in consultation, and complications were already present, they speedily passed away under the influence of this treatment.

In conclusion, I will say that the efficacy of this treatment as demonstrated by the clinical results are the rocky shores of truth against which the fleeting and effervescing waves of the narrow-minded and prejudiced will forever beat in vain. It is too well established with the thinking members of the profession, for its solid foundation ever to be undermined by men who use the flimsy argument, "I do not believe in it."

HYDROPHOBIA: ITS PREVALENCE AND PREVENTION.

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Of all acute diseases to which flesh is heir there is none more horrible than hydrophobia. When once the symptoms of rabies have been established, hope is gone, for the disease is incurable and palliative treatment is all that need be used until death relieves the sufferer's agony. Fortunately for man this is a rare disease. It is, however, more prevalent than many of us would think from looking over the reports of the various health boards, where cause of death from rabies has been usually classed under the general term convulsions.

The past year has marked quite an advance in the study of this disease, and while the clinical picture is well described in all the leading books on practice, still there has been an absence of a distinctive pathology. This has given some ground for skepticism, and I remember when I read my paper before this body last year a distinguished professor of medicine in this city expressed some doubt as to the existence of rabies in the human species. This pathological hiatus has been supplied by the work of Van Gehuchten and Nelis in Europe, and by Drs. Ravenel and McCarthy in Philadelphia, and Keirle in Baltimore.

At a recent meeting of the Pathological Society of Philadelphia Drs. Ravenel and McCarthy read a paper confirm-

ing the work done in Europe during the past year on the pathology and diagnosis from pathological lesions of hydrophobia.

They described the essential and distinctive lesions of rabies in the peripheral, sensory and sympathetic ganglia. The normal intervertebral ganglion, or ganglion of the cerebral nerves, is composed mainly of large ganglionic cells; each cell is surrounded by an endothelial capsule of one layer of cells. Between the capsules there is a stroma of connective tissue, nerve fibers, and blood-vessels. In the ganglion of a rabid dog the cells are degenerated, shrunken, and may have disappeared. In the place of the degenerated and atrophied cells are the capsules filled up with masses of small irregular nucleated cells. As the ganglion cell degenerates and shrinks the capsular cells proliferate and fill up the capsule, and, together with a leukocytic infiltration which occurs in the stroma, give a distinctive picture to the section. Other changes are found in the spinal cord and medulla, but they are not so constant or characteristic as the ganglion. These changes are not found as a constant pathological factor in any other disease. They occur in practically all cases of street rabies and are missing in very few of the cases where the disease is produced by subdural injection into rabbits.

These pathological changes occur early in the disease and have practical value as a means of prompt diagnosis. Much valuable time has been lost in the past, waiting for a positive diagnosis in an animal suspected of rabies where several persons have been bitten. It requires from fourteen to twenty-four days to give a positive opinion from the effect upon inoculated rabbits, and any accident happening to the experimental animals may destroy all evidence of rabies. It is now possible for a good pathologist to make a diagnosis within twenty-four hours after the death of the animal, and

the Pasteur treatment can begin at once. This discovery is a cause of much gratification to those who have for a long time been struggling to establish rabies as a distinct clinical entity. It is incumbent upon the skeptics now to show how a "fatal fear," "deadly hysteria," can produce such widespread changes in the central nervous system.

PREVALENCE.

Hydrophobia occurs oftener than many of us are inclined to believe. During the past ten months seven white persons have died from rabies in Georgia. These cases have been reported through the press, and most of them confirmed by correspondence or reports courteously furnished by attending physicians. I submit the first received, kindly furnished by Dr. J. H. Duffee of Columbus.

Case 1.—Carlton R. F., age 4 1-2 years, Lee County, Alabama. Was bitten several times in the face by a stray fice dog, April 9, 1900. The child's screams brought his father to his rescue, when the dog rushed at him, but he escaped, procured his gun and killed the dog. Because of the dog's peculiar actions it was feared he was rabid and the child was brought to Phœnix City, where a "madstone" was applied to the wounds. They healed nicely under subsequent antiseptic treatment, and but little more was thought of the matter, the child seeming to be in perfect health.

May 22d the little fellow complained of feeling bad in a general way, headache, anorexia, etc., pale and listless. This condition became more aggravated until Friday, 25th, when he had a pronounced chill and some rise in temperature. He complained of pain in his throat and muscles of his neck and upper part of the chest, and there was utter inability to swallow food or drink, although he begged piteously for both. This continued until Sunday, 27th, when convulsions commenced and recurred at intervals till death

put an end to his suffering, Monday, 28th. The child was conscious, except during the convulsions, until a few hours before death. He was cross and irritable during the whole time, but offered no violence to attendants.

This case is a little unusual from the length of prodromal stage, from 22d to 27th, five days.

Another case of interest was kindly reported by Dr. J. Lee Byron of Jackson, Ga.

Case 2.—Jas. S., aged 24, farmer. Bitten April 22, 1900, on left hand. Madstone applied. Three hours later wound was cauterized with carbolic acid and dressed with iodoform. Healed by granulation.

May 29th complained of feeling bad and heavy feeling in left arm.

May 30th restless, difficulty in swallowing. Administered chloral and Penta-Bromides freely, which controlled symptoms til May 31st, at 10 p. m., when convulsions occurred.

June 2d, 3 a. m., twenty-eight hours after last convulsion, he died. Was conscious until twelve hours before death. The unusual feature of this case was the length of the period of exhaustion after the last convulsion before death.

I could detail more cases, but it is unnecessary, as the clinical picture in all the rest was very similar.

Nearly all used the madstone, thus proving its utter worthlessness. There were four children and three adults. Six were bitten by dogs and one by a cat. Besides these I have the records of twenty-five deaths in the Middle States from rabies. During the past year there have been treated in the four Pasteur institutes in the United States at New York, Baltimore, Chicago and Atlanta 375 patients, with a fatality of 4. One of these patients did not take treatment until eighty-five days after he was bitten, and another was taken away before the treatment was completed, so we have

really only two deaths in 375 cases treated, or less than six-tenths of one per cent. When we consider the fact that before the Pasteur treatment Ziemsen places the mortality for bites on the face at ninety per cent., bites on the hand at sixty-three, and on legs and arms twenty to twenty-eight per cent. (other authorities do not place the mortality so high), this gives us, as a recent lecturer at Harvard said, as near a specific as we can expect in medicine.

PREVENTION.

It is the glory of medicine of the twentieth century that we not only seek to cure but also to prevent disease. We are searching for the origin and mode of transmission of all infectious diseases. During the past year the mosquito has been conclusively proven to be the means of inoculating man with malaria and yellow fever. Doubtless the sale of mosquito nets will be increased tenfold, for why take the risk of malaria when so simple a device will protect us? Now the dog has been proved to be the cause and means of transmitting rabies. What shall be done with him? must we exterminate him? No, a thousand times no! Many of us will agree with Judge Marr, who said: "The more I know of men, the better I love dogs."

What then? Put muzzles on the dogs. The value of muzzles in suppressing rabies has been demonstrated on many occasions.

The Royal Commission on Rabies, of Prussia, stated in their report that in 1852, 107 dogs were destroyed as rabid. The Royal police issued a decree to the effect that on July 2, 1853, all dogs should be provided with a wire muzzle positively preventing the animal from biting. All dogs not muzzled were destroyed and their owners fined. The next year following this order only one dog was killed as rabid against ninety-seven in the previous year.

In Vienna we are informed that rabies was entirely sup-

pressed by eighteen months of stringent muzzling; but in the summer of 1886 the muzzling order was rescinded, and badges had to be worn on dog collars instead. In the following half year there was only one case of the disease, but in the next half year rabies became epidemic, and the muzzle was again worn with the result that the malady soon subsided and disappeared. The muzzling order is still rigidly enforced in Vienna.

Belgium has tried all other recognized measures except the muzzle, and yet rabies is as rife there and deadly as ever. A royal commission was appointed to investigate rabies, and they urged the immediate adoption of the muzzle as the best means for suppressing the disease.

In Sweden rabies was at one time a somewhat common disease, and from eight to ten people died annually from hydrophobia; but since muzzling has been enforced and importaton of dogs prohibited, rabies has become unknown and no person has died from hydrophobia since 1870.

I have no patience with those who from senseless sentimentality oppose the use of the muzzle, for it seems they care less for human life than for a little inconvenience and discomfort to their dogs. A muzzle can be made light and strong, and to fit so as to give the dog very little discomfort, and at the same time be perfectly safe.

I regret that our last legislature took a backward step in repealing the dog tax. This law would have reduced the danger from rabies by diminishing the number of worthless curs that roam at large seeking what they may devour.

To summarize: Hydrophobia is a distinct clinical entity, with peculiar pathological lesions. It is much more common than is generally supposed. Seven white persons died in Georgia alone during the past ten months. Muzzling is the best means of preventing it, and the Pasteur method is the only successful treatment.

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DISCUSSION ON DR. SLACK'S PAPER.

Dr. Eugene Foster, Augusta: I do not know to whom Dr. Slack referred in his paper as questioning the existence of such a disease as hydrophobia, but I am told that I am the one referred to. I have never stated unqualifiedly that there is no such disease as hydrophobia occurring in human beings. I have said, and repeat now, that I have grave doubts on this question. But, granting the existence of such a disease, it is unquestionably so rarely encountered as to constitute it a clinical curiosity; and for this reason it does not, in my judgment, merit the attention which is being bestowed upon it in some quarters. I have asked at least fifty doctors, those doing the largest practice in their respective localities, if they ever saw a case of hydrophobia, and all of them replied, "No." Dr. W. F. Holt, of Macon, stated to me on yesterday that there was no record of a case of this disease in Bellevue Hospital for forty years, as shown by an examination which he had made of the records of that institution. The mortuary records of Atlanta, Augusta and Macon are absolutely blank on this subject. Does this not show that hydrophobia, if it really exists

as a disease in human beings, is a disease in the nature of a clinical curiosity rather than one meriting all the attention which is being bestowed upon it? I heard Dr. Doster, on yesterday, detail a case of hydrophobia, and I would like to have him relate it to this Association, as the case largely expresses my views on the subject. I have repeatedly seen cases of so-called hydrophobia in dogs, some of them having bitten human beings, but no hydrophobia occurred in the parties bitten by these dogs. Scarcely a hot season passes in this city but that I have seen a number of dogs being chased through the streets by persons trying to kill them, claiming that they were mad. I have seen a number of these dogs biting at their pursuers, but this is only natural when you consider the inhuman treatment that is being visited upon them. I have taken several of these dogs into my yard and treated them kindly, and as soon as they were over their excitement they were as kind and tractable as any other dog. I do not agree with Dr. Slack in his demand for muzzling of dogs. We have arrived at an age in medicine when, according to some authorities, if a man would escape malarial infection he must go about with a mosquito net over him. I have no belief in the necessity for mosquito nets in the prevention of malarial infection in human beings, nor the muzzling of dogs to prevent hydrophobia in man. The mosquito theory is not by any means a proven fact in medicine. A member of our Association stated to me that at the request of Dr. Slack he wished to give me the facts of a case of hydrophobia which he had recently encountered in his practice. He detailed symptoms in a child which might have been the result of malarial fever or of cerebro-spinal meningitis. In fact he did not seem to know much about his case, for when I asked him if the child had fever he replied that he did not take its temperature. The fact that the child had convulsions and had previously been

bitten by a dog said to have been mad, the biting having occurred several months previously, caused him to arrive at the diagnosis of hydrophobia. Dr. Holt stated to me on yesterday that two people in or near Macon were bitten by the same yellow dog. One of these men went to New York and took the antirabic treatment and died. The other one stayed at home and is well. Probably if the man who went to New York had remained at home as the other one did, he, too, would have continued in the possession of good health. I regret that Dr. Slack is not present while I am discussing his paper. I wish, however, to say that he knows nothing whatever on this subject from personal experience, as he stated to me on yesterday that he had never seen a case of hydrophobia in a human being. The fact that this statement comes from Dr. Slack, who has for several years been chairman of the Committee of this Association on "Pasteur Institute," is certainly confirmatory of my views that if hydrophobia be a disease of human beings it is encountered so rarely as to constitute it a clinical curiosity.

Dr. W. F. Westmoreland, Atlanta: I simply want to align myself on the side of hydrophobia, and there is only one treatment for it, and that is the Pasteur treatment. We have only to go by the statistics to be convinced of the fact, and any one who has kept up with them cannot doubt them. The only way to be sure of such things is to keep a check on them, and the check in hydrophobia is that when a man dies to take a portion of the brain and inject it into an animal and it will produce the same symptoms. That was done in these cases right along, and from animals as well as from people. I was a skeptic in this matter and was raised by a skeptic, but I have changed my ideas. A thorough investigation of this subject will convince any of us that there is such a thing

as hydrophobia, and that the Pasteur treatment is the only treatment for it.

Dr. St. J. B. Graham, Savannah: Along this line I would like to relate a case. Last year Dr. Geo. H. Stone, of Savannah, called me into consultation to see a patient whom he said had hydrophobia. I was a skeptic, as I had never seen a case of hydrophobia. The history of the case was this: The patient was a lady who had tried to separate two dogs which were fighting and was bitten through the hand. She went to a doctor, who cauterized the wound and dressed it, and as time went by it healed up and she paid no attention to it. After three months she sent for Dr. Stone. He called me to see the case, and we went to the house and made a thorough scientific investigation. We took her temperature and it was 101 1-2; she had paralytic dysphagia, would try to swallow but could not. Was very excitable and almost in a state of acute mania. Knee-jerk was absent. After examining her thoroughly, I was still skeptical and told the doctor that I thought she was hysterical. We tried the bromides and everything that we could do for her, but without any effect. We gave her half a grain of morphine, but it had no more effect than so much water. She would lie down for a few minutes and then jump up and run around without knowing why she did it. I examined her urine, but the result was negative. Her bowels had moved that morning. She complained of no pain, but was in an absolutely restless condition. She realized all that was going on, but could not control herself when the impulse would come over her to jump up and run around. We left her in the afternoon and she died within two hours after leaving her. We went back after she had died and requested permission to remove the cerebellum. The request was granted and we sterilized the instruments

thoroughly, shaved the head, and did everything to prevent any contamination. In the presence of three other doctors of Savannah I removed the cerebellum under aseptic precautions and placed portions of it in three test-tubes which had been sterilized. I carried the tubes down-town and procured three rabbits. With a platinum needle I removed portions of the brain from the tubes and mixed them up with fifteen minims of sterile water and injected this into two of the rabbits at the base of the neck. The third rabbit was not inoculated, but was used simply as a control. The rabbits were placed in a cage. From the tubes containing the cerebellum I inoculated a tube of gelatin, agar-agar, and potato, and there was no growth whatever after a number of days, the tubes remaining perfectly sterile. The rabbits were sent down to the City Exchange and I watched them for two months, but they failed to show any symptoms of hydrophobia. I felt sure that the woman had died of hydrophobia, but it seemed that the rabbits would not develop it, and so I had the rabbits sent out to the quarantine station to be turned loose. The next day after they were sent out, one of the rabbits developed hydrophobia, and died three days later, and two days after that the second one developed it also and died. The third rabbit, which had not been inoculated, remained well.

Dr. E. J. Spratling, Forsyth: Late in the afternoon of the 31st of December, Mr. Maynard, of the Maynard Banking Company of my place, came to me and stated that there was a case of hydrophobia at his house and asked me to see it. I found old lady Betsy Dyer acting very peculiarly. Temperature 99 1-2, pulse 84. Other than her bizarre actions, especially on attempting to swallow, there seemed to be nothing the matter with her, and I told them that she needed a good night's rest

and would then probably be all right. Next morning I found that while trying to swallow water she had a convulsion, and another six hours later from the same cause. Had slept none during the night. I gave her morphine—no effect on the bizarre movements of her body and convulsive contractions of her larynx. I tried chloral per rectum with failure. In two days she died, first having become stuporous, finally before death, comatose. During the fall she had been bitten on the hand by a cat, but had paid no attention to it, as they did not suspect the cat of having hydrophobia. Mr. Maynard told me afterward that after the cat bit her it went out under the steps and began to have fits. Yet he did not attach any importance to this, but the next day he found it dead. When I first saw this case I was very skeptical about its being a case of hydrophobia, but as the case developed there could have been no doubt about it.

Dr. Claude A. Smith, Atlanta: I would like to ask Dr. Graham if, when she would jump up and run around, he could do anything with her at that time, or whether she would take any notice of anything that he said to her?

Dr. Graham: As I at first thought she was hysterical, I endeavored to use hypnotism with her, and to control her by various means, but could have no effect whatever. After the paroxysm would pass off she would say that she had tried to control herself and did everything she could to keep from jumping up and running around, but that she could not help herself.

Dr. Smith: The symptoms as described by Dr. Graham are very similar to those seen in animals, such as cats and dogs, suffering with rabies. The restlessness and paroxsyms coming on and increasing in frequency and intensity until there are well-marked convulsions are typical of these cases of convulsive or furious rabies. In the rabbit as used for the Pasteur treatment, the symptoms are those

of an ascending paralysis, and the disease in this animal takes the form of paralytic rabies; while in a dog or cat inoculated with the same virus, we almost always have the development of the furious rabies. I find that by trephining the skull of a dog or cat and inoculating them subdurally with the virus which we use in the rabbits, that the first symptoms of hydrophoba appear about the seventh day, and the animal usually dies within twenty-four to thirty-six hours after the appearance of the first symptoms.

As to the prevalence of hydrophobia, one of the members mentioned that the records of Bellevue Hospital for forty years did not show a single case of hydrophobia. When we take into consideration the character of the disease we would not expect to find cases in the hospitals, for by the time the disease has developed the condition of patient is so serious that there is no time to carry him to a hospital. Since my connection with the Pasteur Institute, as Secretary, I have been surprised at the number of cases of this disease which have been reported to me and which I would not have otherwise heard of. Any one who has any doubts about the disease can easily settle the matter, as Dr. Westmoreland has stated, by making a careful investigation.

TYPES OF SMALLPOX.

EUGENE FOSTER, M.D., Augusta, Ga.,

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After an absence of twenty or more years from the various sections of our State smallpox made its appearance in Georgia in 1898. The first case in Augusta was detected May 5th of that year, the patient having contracted the disease in South Carolina, and had gone to our college clinic for treatment. From that date to the present time smallpox has invaded almost all counties in Georgia and South Carolina and various sections of the United States. In not a few communities the disease from time to time assumed epidemic proportions through failure of physicians to recognize it until it had attacked a goodly proportion of the population.

The disease as seen by me in Georgia and South Carolina was and has continued to be of an unusually mild type both as to fatality and the amount and character of the eruption. Indeed in these respects it was the lightest I have ever encountered. By the majority of physicians it was diagnosticated as chicken-pox. Some claimed that it was impetigo contagiosa; while others contended that it was "Cuban itch"; others insisted that it was an unknown variety of skin disease. The negroes called it "elephant's itch." All physicians who came in contact with it agreed that the malady was contagious, and all of them who were experienced in smallpox promptly recognized

it as such. As previously stated the majority of cases were mild both as to constitutional symptoms and the character of the eruption, and equally strange was the fact that while fully one-sixth of the cases were of the confluent or semi-confluent variety, not more than one in twenty-five or fifty proved fatal. Equally strange was the further fact that in confluent and semi-confluent cases, while the eruption went on to and through the purulent stage, secondary or maturation fever was rarely observed. In confluent and semi-confluent cases pitting was in about the percentage attendant upon severer epidemics of this malady. The disease attacked unvaccinated persons only. In all the cases seen by me no one of them presented a typical scar of vaccination. Some of them claimed to have been vaccinated, yet in every instance I carefully searched for a vaccine scar, but never found any evidence that the attempt at vaccination had proven successful. In those attacked the initial symptoms were those of smallpox—i. e., headache, backache, chill, fever and vomiting, and these symptoms were as commonly complained of by those who took the disease mildly as in those who had the severer types. In those who presented the mild variety of the malady the constitutional symptoms disappeared wholly when the eruption appeared, and they went to work or visited neighbors as though they were quite well. None of these patients affected with the mild type thought the disease to be anything more than chicken-pox, and in not a few instances had been so informed by their physicians. In justice to the physicians, it should be stated that mistakes in diagnosticating the unusually mild cases were quite natural in that in not a few of them, although never vaccinated, the number of points of eruption on a patient did not exceed one hundred, and the course of the eruption was not infrequently as atypical when compared with the types ordinarily observed as was the amount of it. On several of the patients seen by me the

pustules did not number beyond twenty-five or fifty on the entire body. In one instance a careful count disclosed only twelve vesicles on the entire body of an adult, yet from careful observation I am enabled to state positively that several persons contracted semi-confluent smallpox from this patient. The patient whose photograph I here present, Turner by name, contracted the disease from a man who had only thirty-five pustules of smallpox on his entire body. This case was so mild that two physicians had pronounced his disease chicken-pox, yet Turner contracted a case of confluent smallpox from him. In not a few families I observed cases of confluent, semi-confluent, discrete and varioloid varieties of smallpox, no one of whom had ever been vaccinated. I present these three photos showing the father with confluent smallpox, while one son had only twenty-four pustules on his body and another son had forty-four pustules. The wife and mother had had semi-confluent smallpox, but had recovered before being detected and for this reason was not photographed. I present herewith a number of photos showing all grades of the disease from the most typical confluent variety to the most atypical, which latter were so light that only an expert could have diagnosticated them. From these photos can any physician who claims to know the disease when he sees it deny that it was smallpox? Undoubtedly no. Yet in five different instances, when I was called to infected communities in South Carolina and Georgia, I found intelligent physicians, men far above the average physician, insisting that cases of discrete and even semi-confluent smallpox were chicken-pox; and in another county in Georgia the leading local physician insisted that the disease was impetigo contagiosa, and he persisted in his diagnosis in the face of the fact that I personally demonstrated to him that the disease was confined exclusively to unvaccinated persons. In the instances in which the local physicians were insisting that the malady was chicken-pox,

I directed their attention to the two facts that it was confined to the unvaccinated, and in each community had attacked whole families of adults, yet these facts did not in anywise convince them of their error. Just here I beg to be permitted to say that I do not subscribe to the statement that chicken-pox never attacks an adult, for I have seen several such undoubted cases, but no physician ever saw chicken-pox attack a whole family of grown persons.

The question naturally arises, why did our profession fail to promptly diagnosticate the disease to be smallpox? I answer that four causes conspired to lead doctors into error —i. e.: 1. Smallpox had been absent from the State for twenty or more years; hence well-nigh all of the members of our profession who were practically acquainted with it had died or retired from practice. 2. The old as well as the young physicians who failed to recognize the malady were led into error by erroneous teachings of our best modern text-books on practice of medicine. 3. Defective medical education on contagious diseases in even the best modern medical schools in America, for they send out their graduates with no instruction on contagious diseases other than such as is imparted to them by didactic lectures, instead of familiarizing them with this class of affections by bedside instruction. 4. The unprecedentedly large percentage of modified or mild cases of the disease.

The fact that nearly all of our profession who were experienced in smallpox had died or retired from practice left the diagnosis of the malady in the hands of physicians who had never been educated into an acquaintance with it, and they were therefore forced to rely upon the faulty teaching of their text-books. All of the best modern text-books on practice of medicine accurately and correctly describe the confluent, semi-confluent and hemorrhagic types of the disease, but well-nigh all of

them are misleading in their descriptions of discrete smallpox and varioloid, and these books are responsible for the failures of our profession to recognize the last two tpyes of the malady. Osler, who is justly accorded credit as being the highest authority as a text-writer in American medicine, is glaringly incorrect in his description of discrete smallpox and of varioloid. Relative to discrete smallpox he says: "On the fifth or sixth day the papules change into vesicles with clear summits; each one (describing the vesicles) is elevated, circular, and presents a little depression in the center, the so-called umbilication. About the eighth day the vesicles change into pustules, the umbilication disappears, the flat top assumes a globular form and becomes grayish yellow in color, owing to the contained pus. The temperature now rises—secondary fever—and the general symptoms return." Now, while Osler's descripton is correct as to the majority of cases of discrete smallpox, there are many cases of this variety which vary materially therefrom, and in these instances, the very ones where special guidance is necessary, Osler not only gives you no light, but misleads the inexperienced by failing to mention the numerous cases which depart from the type he describes. Let me give you a few instances. Umbilication of vesicles of smallpox is very commonly observed, yet physicians who have had much experience in this disease must have encountered not a few cases in which umbilication of vesicles did not occur, but the vesicles remained globular. I have repeatedly encountered such cases. Again, in some epidemics secondary fever is not witnessed in one out of ten cases. Again, Osler tells us: "Varioloid—This is a term applied to the modified form of smallpox which affects persons who have been vaccinated," and under this heading says: "There are several forms of rash; thus in what has been known as hornpox,

crystalline pox, and wart pox the papules come out in numbers on the third or fourth day, and by the fifth or sixth day have dried to a hard, horny substance." Now, I insist that these several forms of rash are not, and at no period of medical history have been, confined to persons who had previously undergone vaccination or had smallpox. In my experience with smallpox, which extends over thirty years, I have seen at least ten such cases in the unvaccinated to every one in which the patient had been vaccinated or had previously had smallpox. The one error above all others into which Osler has fallen is his indorsement of the statement that varioloid is smallpox modified by previous vaccination or prior attack of smallpox in persons undergoing the modified variety of the disease. In almost every epidemic of smallpox numerous cases of the modified form of the disease have been observed in persons who have never had smallpox or been vaccinated, modified in that the constitutional symptoms, and particularly the course of the eruption, departed materially from the more ordinary forms of the malady described by Osler. During the initial stage it was frequently impossible to draw a distinction between the modified form and the more usual types of the disease, for in the modified form the initial stage was ordinarily as prolonged and the symptoms as severe as in the unmodified varieties. Not only this but in not a few instances the eruption appeared on the body or limbs before invading the face, and fresh crops of the eruption appeared after vesicles were formed upon other parts of the body. That these were cases of smallpox cannot be questioned by any expert who witnessed them. Occurring in the unvaccinated and in those who had never previously had smallpox, how are these cases of modified smallpox to be accounted for? Exactly as they were accounted for more than fifty

years ago, i. e., partial natural immunity of a varying percentage of populations, varying from one period to another. In smallpox, as in scarlet fever, yellow fever, measles, etc., epidemics of varying degrees of severity or mildness have from time to time been observed, and can only be accounted for upon the theory of partial natural immunity of varying percentages of populations at one time compared with another. Yet, with one exception, all of our best modern textbooks, in discussing smallpox, ignore that great, though inexplicable factor in disease, partial natural immunity.

Ander wisely says: "An abortive form is occasionally observed. It is characterized by the great intensity of the invasion symptoms, but these promptly subside, and the patient enters at once upon a speedy recovery." "An exceedingly mild type may arise during seasons of epidemic prevalence of the disease, either with or without a scanty and undeveloped eruption, when the diagnosis is made entirely from the etiologic circumstances." Now while Ander's Practice of Medicine properly reminds you of the fact that at the present day some epidemics of smallpox are severe, others mild, he but repeats what was distinctly taught more than one hundred years ago, and, because ignored by other modern text-writers, needs to be reiterated with emphasis at the present time. Curschmann, in Ziemssen's Cyclopædia of Practice of Medicine, Vol. II, published in 1875, says the prognosis of variola must be considered in several different aspects. We must first regard the disease in general—its varieties and its different epidemics—then the separate cases and symptoms." Again Curschmann says: "We have now presented variola vera in the first place as a prototype solely, as was remarked, for the sake of superficial description. The remaining forms of the smallpox process may present certain complications according to the general condition of the patient, and espe-

cially the intensity of the skin affection. These variations from the course described may present the most extreme limits, from the severest and absolutely fatal forms to the very lightest cases of varioloid, in which but a few pustules reveal the fact that we are dealing with a sick patient. None of these forms are sharply defined amidst the great group of variolous affections; but there is rather a gradual transition from one into the other, so that general outlines are to be associated with the most customary designations rather than sharply circumscribed features." Again, he says: "As in frequency, so also in intensity, smallpox exhibits the greatest variation in individual endemics and epidemics."

Thus it will be seen that in different epidemics a large percentage, and in some epidemics the largest percentage of cases of smallpox will be of the mildest type—varioloid, as it is called—and this results not from previous vaccination as Osler and almost all of our best modern text-writers contend, but from partial natural immunity existing to a far greater extent during different times in the lives of individuals. To contend that varioloid results only in consequence of such patients having previously had smallpox or having been vaccinated is wholly at variance with the history of smallpox. Yet almost without exception the highest authorities in American medicine have fallen into this error. Curschmann properly says: "It is generally conceded at the present time that varioloid is nothing more than a form of smallpox with a milder course and a shorter duration, and this view being accepted, it is readily seen that between varioloid and variola vera no absolute line of distinction can be drawn. During every epidemic of any considerable extent a number of cases are found which show a transition from one to the other form, and which, when we have fol-

lowed their entire course, leave us in doubt as to whether we shall call them cases of variola or varioloid. The quantity or quality of the eruption is as far from being a good criterion in determining the nature of the affection as the presence or absence of the suppurative fever, which some consider as decisive in this respect. The latter does not even depend entirely upon the intensity of the disease, but upon personal peculiarities, and particularly upon the sensibility of the person attacked. As regards the peculiar conditions under which varioloid occurs, it is important in the first place to observe that many persons never having had smallpox nor been vaccinated are only attacked by this form, on account of a natural slight susceptibility to the smallpox contagion. We accordingly find frequent mention made of cases in which the disease runs an extremely mild course."

I quote but one other authority, though I could cite a large number. George Cleghorn, M.D., in his book on Epidemical Diseases of Minorca, says: "The smallpox were twice epidemical in Minorca while I resided there, viz., in the years 1742 and 1746. About the middle of March, 1742, the smallpox broke out in Minorca, to the great consternation of the natives, who had not seen them since the year 1725, but well remembered the destruction which they then occasioned.

"During the first six or eight weeks (1742) the distemper was favorable, and seldom proved fatal; but its virulence increased with the heat of the weather; so that in June and July it was not uncommon, both at Mahon and Ciudadella, to bury ten or twelve of a day. Nevertheless, in proportion to the numbers, not many died; and what mortality there was happened chiefly among children at the breast and the common soldiers."

Speaking of the epidemic of 1745-46, Cleghorn says: "Then they (the smallpox) traveled northward to Ciudadel-

la, and disappeared in the spring, having carried off almost all of the children who survived the chincough and summer fevers. It was, however, very remarkable that the longer the infection continued in the island the milder it became, so that there was much less mortality in the northern parts than in the southern, where it first broke out." Cleghorn then cites the fact that at St. Philip's Castle, 1746, three-fourths of the smallpox patients died.

It is therefore an imperious necessity that in this advanced medical age we should take our bearings anew in studying smallpox, and this must be done by ignoring nearly all of our best modern text-books and returning to the old masters in medicine for instruction in this disease. We must with them appreciate the fact that smallpox varies in type not only in endemics but in epidemics and even pandemics. Old authors describe a large number of varieties or types of eruption in smallpox. They mention the following: Variola siliquosa, pemphigosa, verrucosa, crystallina. The older English authors describe cases of horn-pock, swinepox, etc. Hebra gives the following list of Latin adjectives formerly employed to picture special varieties of smallpox: Variola papulosa, conica, acuminata, globosa, globulosa, tuberculosa, cornea, fimbriata, miliaris, lymphatica, vesiculosa, pustularis, rosea, moribillosa, carbunculosa, etc. The Chinese, we are told, describe forty varieties of smallpox. Now while it would be useless, if not ridiculous, for a modern text-writer to enter into a detailed description of the vast number of forms of the eruption, it is certainly wiser to do so than to rest content with dismissing the subject, as nearly all of our best modern authorities do, by describing variola confluens, semi-confluens, discreta and hemorrhagic, and then describe varioloid and complacently assure us that varioloid occurs only in persons who are partially protected by a previous vaccination or prior attack of smallpox. This latter statement is, in the

light of the history of smallpox, erroneous, for no physician having been in long and intimate contact with smallpox can have failed to have observed two things. 1. A vast number of cases of varioloid in patients who had never previously had smallpox or been vaccinated, and not a few of these cases of varioloid were contracted from confluent or semi-confluent ones. 2. In almost every epidemic it is not infrequent experience to find cases of hornpox, crystalline pox, and wart pox in individuals who have never previously suffered an attack of smallpox or been vaccinated. Yet so eminent a physician as Osler teaches his inexperienced brethren that the several forms of rash known as hornpox, crystalline pox, and wart pox are types of varioloid, and for smallpox to be varioloid the patient must have previously been successfully vaccinated or had smallpox. No man has higher respect than I have for Osler as an eminent physician and teacher. In common with our profession I regard him as the highest authority in American medicine, and it is because of his eminence in his profession that an erroneous statement from him is fraught with calamitous results. When called into several communities to decide the nature of eruptive diseases I promptly recognized smallpox in each instance, and on each occasion when the hornpox, crystalline pox or wart pox was encountered, the local physician contended that it could not be smallpox, for Osler said that these varieties were observed only in those who had previously been vaccinated, and none of the cases shown me had ever been vaccinated. When confronted with Osler's book on these cases I was forced to insist that my opponents read a better article on smallpox, and loaned them Curschmann's. One of these gentlemen confessed that Curschmann's article on smallpox was a revelation to him and fully convinced him of the correctness of my diagnosis. I therefore feel that, from a diagnostic

standpoint, it is important to point out the fact that in well-nigh every epidemic a larger or smaller percentage of cases of smallpox will be found to be of the following varieties or types, and in persons who have never previously been vaccinated or partially protected by a previous attack of smallpox: (1) Verrucosa, in which the eruption does not go on to the usual well-formed pustules of smallpox, but remain as solid conical papules with a small vesicle at the summit of the papules, and in which, when the eruption has desquamated, leaves behind it a warty elevation of the skin. (2) Pemphigosa. In this variety the vesicles, at first regular, later become irregular bullæ with sero-purulent contents. (3) Miliaris. In this variety or type, in a good percentage, the vesicles on a patient are the size of millet seeds, with yellow fluid, progress no further and finally dry up and fall off. Usually this variety is witnessed in association with the regular, fully developed eruption of variola. (4) Siliquosa. This form is much less frequently encountered than the previous three just described. The pustules develop regularly, and finally the contents are absorbed, leaving the pustules with the appearance of empty shells. It is unquestionably a common experience in epidemics of smallpox to find intermediate forms or varieties of eruption, from those scarcely suggesting the existence of smallpox to those presenting the confluent form of the malady. Cases which, as Curschmann says, "show a transition from one to the other form, and which, when we have followed their entire course, leave us in doubt as to whether we shall call them cases of variola or varioloid." It is true that in some epidemics the eruption and types of smallpox as described in our best modern text-books are literally reproduced, but it is equally true that in numerous epidemics the forms or types of eruption in unquestionable smallpox in unvaccinated individuals depart from the teaching of the best modern books to such an extent as to mislead instead of aid

inexperienced physicians, or, to put it in other words, on this subject our best modern text-books on practice of medicine give you accurate and abundant information in cases where special guidance is not necessary, but fail to impart accurate information where their special guidance is absolutely indispensable.

A NEW DISCOVERY IN THE TREATMENT OF CHRONIC DISEASES DEPENDENT UPON CELL CHANGES.

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In this day of progress coupled with skepticism, some of us are rather like the blind man who can retrace every step of the path he has once trodden, but can not guess a single inch of that which he has not traveled. Our reason can reguide us over the roads of past experience with a sure and unerring wisdom, but from a cramped, prejudiced view, and being orthodox, it recoils, baffled and bewildered, before any innovation in therapeutics, which is a departure from the treatment used by our illustrious predecessors. The dictum follows the announcement of a new therapeutic agent—that only the high in the councils of the profession must pass upon it. As an association we are banded together to exchange experiences, and to promote that science of treatment which will render the greatest good to the greatest number. True, the profession is confronted with many so-called remedies, a majority of them being doomed to oblivion, but this should not stamp out the duty we owe to new therapeutical advances. Some three years ago Dr. Roberts, with his scientific views as regards the human economy, conceived and discovered the ideal cell tonic for the treatment of chronic diseases dependent upon cell changes. He realized that the human body is but an aggregation of cells, and all functional disturbances were but the evidences of material changes in these cell structures. Hence was laid

the foundation for this great innovation in therapeutics, discovered by Dr. Roberts and improved upon by Prof. Hawley of Chicago, and known as the Roberts-Hawley Lymph Compound.

Is it not true that remedies suggested by those whose authority we respect, for the treatment of chronic diseases, have accomplished nothing in eliminating the disease except in specific cases? On the contrary, all chronic diseases have a gradual degeneration of the cells, due to different causes; and our present methods of treatment have utterly failed to benefit the objective findings in these diseases.

I know not if we have ever had one solitary departure from orthodoxy in the treatment of diseases, though it stands as a benefaction to all humanity, but what it was accompanied with the greatest chaos of jarring prejudice and criticism, but the consciousness that merit will win, and that it will write its annals with an iron pen, often makes us espouse a cause in our ranks by which good men live and die. They are the men who make the most of life; they are the shrines which sanctify our profession. For them science holds an enchanting spell; their souls drink and are saturated with the mysteries of the universal spirit.

Of all success, I can imagine none more intoxicating or gratifying than the success of some therapeutic agent which proves to be a boon to suffering humanity. But they who succeed resemble the gymnosophists of old—their chief object being pleasure; they expose themselves to every lash of criticism of the tongue. So prejudiced are we often in our views that we resemble those vessels which the waves still carry towards the south when the north wind has ceased to blow.

That I am not alone in the advocacy of this great agent, I will say: that some of the most reputable physicians in every State of the Union and many foreign countries are indorsing it. Statistics show that between four and five

thousand of chronic cases have been treated in two years, seventy-five per cent. of which was classed as incurable, having resorted to other treatment and failed Of this number ten per cent. were not benefited, while fifty per cent. were cured.

This leads us to believe that in chronic degenerative diseases, we have in lymph a complete cell tonic which supplies the cells with pabulum. Our lines of thought on the treatment of chronic diseases must be directed to elimination and nutrition, which alone will lessen structural lesions. I believe that the time is at hand when animal therapy will stand as the one great remedial agent.

Dr. Willis P. King, formerly Vice-President of the American Medical Association, a man of name and fame, in speaking of the Roberts-Hawley Lymph Compound, says: "I believe it to be a discovery by the side of which every medicinal agent previously discovered for chronic diseases loses its greatness; for this remedy surpasses all."

The growth of scientific ideas is much the same as the multiplication of material things—mind, soul and matter follow one law. The first seeds of the fruit must be carefully sheltered and tenderly matured and slowly multiplied to the point where they may be safely scattered broadcast to meet the sun and rain and unfriendly and unfavorable conditions of growth. We might as well expect the air of the Arctic regions to be freighted with the fragrance of tropical fruits and flowers, and that we would be regaled with the sweet songs of birds among the icebergs of that desolate land, or that our hearts would be gladdened with the delicate tints and hues of the daisy, violet, or rose in midwinter, as to introduce a new remedial agent and expect for it and its followers not to receive a certain share of criticism.

Now, the first question that presents itself: What are the indications for the Roberts-Hawley Lymph Compound?

First—In all diseases where the cell function is impaired, especially defective nutrition and functional nerve disorders.

Second—In chronic diseases characterized by infiltration or degeneration, and in all chronic diseases dependent upon cell changes.

One important fact must be remembered : that the action of the Lymph is *general* and not *selective*. The time is at hand in the medical world when a physician's greatness must be reckoned by his contributions of successful treatment of diseases rather than by publishing debatable theories on the functions of an obscure gland, the etiology of an unclassified disease or the pathology of diseases rarely encountered.

We should no longer cling to the belief that chronic organic changes are incurable, when those changes are represented by cell transformation, and not cell death. Fatty degeneration is the metamorphosis of a cell, due to alterations in the quantity and quality of the blood or an irritant to cell life. Why should we not find a specific treatment for it?

The lymph is a powerful cell food and tonic, not only in the actual removal of the cell metamorphosis, but in reconstructive process as evidenced by the gradual building up of a constitution exhausted with functional diseases.

Its effect is to better the quantity and quality of the red blood-corpuscles and to eliminate waste products. At no time are there manifested unpleasant effects from the lymph, and after the first ten days the general health and vital resistance is markedly improved.

The Sub 2 syringe is used with all antiseptic precaution and no local trouble manifests itself.

In justification of its decided action, I submit the following cases:

Case 1. Patient a married woman, age 30. At 27 years

gave birth to a child. At that time contracted morphine habit, taking sixteen grains hypodermically a day. Had taken eleven cures without avail.

Examination revealed the following sequences: Nervous prostration, heart dilation, insomnia, very despondent, constant pains in head, with a drawn facial expression, exhaustion and anemia from inanition.

I began treatment with the Roberts-Hawley Lymph Compound and continued same for thirty days, commencing at six minims twice a day, and increasing it to seventeen minims. Diet was restricted to milk and peptonoids for ten days—solid food was then given with perfect assimilation of same. At expiration of four weeks patient has gained fifteen pounds in weight, slept eight and nine hours, pains in head relieved, and nervous system completely restored and no desire whatever for morphine. The same condition of improvement has continued which has been for eleven weeks. Had occasion to see her a few days ago: her weight had increased twenty-two pounds, she was looking well and seems to be free from symptoms of any kind.

A most rapid and remarkable result did the lymph accomplish in this case.

Case No. 2.—Patient single, age 32, manufacturer by occupation. The following conditions were present: Nervous exhaustion due to overwork, obstinate constipation, unable to assimilate food, pronounced insomnia, severe and frequent headaches. The above condition existed for three years. A complete cure followed the use of the lymph in five weeks.

So from a practical and theoretical standpoint, the lymph stands as a permanent discovery for the treatment of chronic diseases dependent upon cell changes; and in adapting it in diseases indicated, I feel that I am doing my duty to my patients and my profession.

"Prove all things; hold fast to that which is good."

CONSTITUTION AND BY-LAWS

OF THE

Medical Association of Georgia.

CONSTITUTION.

ARTICLE I.

Name.

Section 1. The name of this Association shall be "The Medical Association of Georgia."

Objects.

Sec. 2. The objects of this Association shall be to organize the medical profession of the State in the most efficient manner possible; to encourage a high standard of professional qualifications and ethics, and to promote professional brotherhood.

ARTICLE II.

Members.

Section 1. Any white physician, who resides within the limits of the State, who is a graduate of a regular Medical College in good standing, and who adopts and conforms to the Code of Ethics of the American Medical Association, shall be eligible to membership in this body.

ARTICLE III.

Officers.

Section 1. The officers of this Association shall consist of one President, two Vice-Presidents, one Secretary and Treasurer, and five Censors.

Sec. 2. The President and Vice-Presidents shall be elected for one year; the Secretary and Treasurer for five years; each officer shall continue in office until his successor is elected and installed.

Sec. 3. Members of the Board of Censors shall be elected for a term of five years. There shall be an annual election of one member. Vacancies occurring from other causes shall be filled for the unexpired term.

ARTICLE IV.

President.

Section 1. The President shall be the chief executive officer of the Association. He shall preside at all the meetings of this body, preserve order, and perform such other duties as parliamentary usages impose on presiding officers.

Sec. 2. He shall appoint the requisite number of delegates to the American Medical Association, and to such other scientific bodies as may be desirable.

Sec. 3. The President shall be *ex officio* member of all annual committees.

Sec. 4. He shall, in the intervals between the annual sessions, direct and control the general policy and business of the Association, with careful attention to its constitutional provisions.

Sec. 5. He shall appoint all annual committees, except Committee on New Members; he appoints only the Chairman of this committee (Art. V., Sec. 7, By-Laws); also an

Auditing Committee, consisting of three members, whose duty it shall be to investigate and audit the books and accounts of the Secretary and Treasurer, and report their findings to the meeting.

ARTICLE V.

Vice-President.

Section 1. Vice-Presidents, in their order, shall, in case of the absence or the death of the President, discharge all the duties belonging to the presidential office.

ARTICLE VI.

Secretary and Treasurer.

Section 1. The Secretary and Treasurer shall have charge of all the books, papers and records of the Association, shall collect the annual dues and have custody of all the moneys belonging to the Association and pay the bills of the Association when approved by the President, and shall record the minutes of the Association at all its meetings. He shall be *ex officio* member of the Publishing Committee

Sec. 2. He shall, by February 1st, send a notice to each member, of the time and place of ensuing meeting, requesting his interest and his personal efforts in securing a large attendance, and requesting each member to send the title of his paper to the Chairman of the Program Committee.

Sec. 3. He shall keep the roll of the members of this body who have retained their membership by compliance with the provisions of this Constitution, and also the names of those who have forfeited membership, together with the cause of such forfeiture.

Sec. 4. He shall furnish a balance sheet at each an-

nual meeting for the past fiscal year to be published in the Transactions. This shall consist of an itemized statement of all financial transactions of the past year, all accounts made, all moneys received and from whom, and all moneys disbursed, to whom and for what purposes, with vouchers attached. (A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.)

Sec. 5. The Secretary and Treasurer shall receive as compensation for his services the sum of $300 per annum, which shall be paid out of the funds of the Association, and said Secretary and Treasurer shall give a bond in the sum of $1,000, payable to the Medical Association of Georgia for the faithful performance of his duty.

Sec. 6. The Secretary shall provide and keep upon his desk, during each meeting, a copy of the "Rules of Order" provided for by the By-laws.

ARTICLE VII.

Censors.

Section 1. The Board of Censors shall hold annual meetings concurrently with the annual sessions of the Association, to whom shall be referred all applications for membership, with vouchers from two members; and in such cases their decision shall be reported to the body for action. Three of their number shall constitute a quorum for business, and the Chairman and Secretary shall be designated by the President.

Sec. 2. They shall at all times, in the interval between, as well as during the meetings, take cognizance of all offenses against the Association or its members, or violaton of the Code of Ethics (and prefer charges against the offenders). They are authorized to summon before them such members and witnesses as they may deem necessary.

They shall have the power of reproving members for cause without reporting their action to the Association. Or they may report any member to the Association for reprimand, suspension (for a definite time) or expulsion. They shall report the names of the individuals, and the offense for which action has been taken, immediately to the Association for action, at which time, or at the next succeeding meeting, such individuals may have the right to appeal to that body. Charges brought against a member or members of this Association, otherwise than by the Board of Censors, must be preferred in writing and signed by a member of this Association.

Sec. 3. The President of the Association, or the Chairman of the Board of Censors, may call the Board together at any time between the meetings, for the investigation of any offense on the part of any member or members, of sufficient importance to necessitate such action. The Board of Censors shall at all times have the power embodied in Art. VII., Sec. 2.

Sec. 4. The President and Board of Censors shall constitute a tribunal with the power to suspend any officer for cause.

ARTICLE VIII.

Finances.

Section 1. Every member of the Association shall pay annually into the treasury such sum as the Association may determine, which amount, it is expected, will be paid during the session of the body.

ARTICLE IX.

Constitution.

Section 1. The Constitution shall take immediate effect from its adoption.

SEC. 2. The By-Laws now in operation, and Order of Business, are adopted so far as they agree with this Constitution.

ARTICLE X.

Annual Meeting.

Section 1. The annual meetings shall take place on the third Wednesday in April, and at such place as shall be designated by the majority of the Association.

ARTICLE XI.

Amendments.

Section 1. Any amendment that may be offered to the Constitution shall lie over until the next annual meeting; and for its adoption at such meeting shall require a two-thirds vote of all present and voting.

BY-LAWS.

ARTICLE I.

Order of Business.

Section 1. Meeting of the Association at an hour appointed by the Program Committee.

Sec. 2. Report of the Annual Committees: (1) Committee on Arrangements; (2) Committee on Program; (3) Committee on Publication; (4) Committee on Necrology; (5) Committee on New Members; (6) Committee on Medical Legislation.

Sec. 3. Report of Special Committees.

Sec. 4. Report of Secretary and Treasurer.

Sec. 5. Appointment of Auditing Committee, who shall report on or before morning of third day.

Sec. 6. Election of officers.

Sec. 7. Selection of place for next annual meeting.

Sec. 8. New business.

Sec. 9. Unfinished business.

Sec. 10. Installation of new officers.

ARTICLE II.

Election of Officers.

Section 1. The officers of the Association shall be elected by ballot, without a nomination, at 1 o'clock p. m., on the last day of the Association, and if there is no election on the first ballot, the three names receiving the highest number of ballots shall be voted on, the other names being

dropped. If there is no election on second ballot, the two names receiving the highest number of ballots shall be voted on until election occurs.

ARTICLE III.

Selection of Place of Meeting.

Section 1. Selection of place for next annual meeting shall occur immediately after the election of officers.

ARTICLE IV.

Officers.

Section 1. All officers of this Association shall enter upon their duties at the time of their election.

ARTICLE V.

Committees.

Section 1. Each committee, except the Committee on New Members (see Art. V., Sec. 7, By-Laws) and their Chairman, shall be appointed by the President.

Sec. 2. There shall be six Annual Committees, as follows:

Sec. 3. The Committee of Arrangements shall consist of five members, residents of the place selected for the ensuing meeting. They shall provide suitable accommodations for the meetings of the Association, space for medical and surgical exhibits, and make such other local arrangements as they may deem essential for the success of the meeting.

Sec. 4. The Committee on Publication shall consist of five members in addition to the President and Secretary (*ex officio*). They shall provide for the publication of the minutes of the session, together with such papers as are

deemed worthy. They shall also append to each volume of Transactions a copy of the Constitution and By-Laws of the Association, and Roll of Membership. They shall also be governed by Article VIII., By-Laws.

Sec. 5. The Committee on Necrology shall consist of five members, whose duty it shall be to procure short memorials of deceased members, and present them for publication in the Transactions.

Sec. 6. The Committee on Program shall consist of five members. They shall, on February 1st, issue a circular letter to each member of this Association, and such other regular physicians as they may deem proper, requesting them to read a paper at the ensuing meeting, the title of which should be sent to the Chairman of this Committee before March 1st. On March 10th they shall issue and mail to each member a preliminary program. Ten days before the meeting they shall issue and mail to each member the final program. This program shall contain the titles of all papers to be read, the order of business, entertainments, etc., as agreed upon by the Committee of Arrangements and this committee, information in regard to hotel and railroad rates, amendments to Constitution and By-Laws, and such other information as may suggest itself to this committee as being of value to the members of the Association.

Sec. 7. Committee on New Members shall consist of a Chairman appointed by the President, and one other member from each county in the State, who shall be appointed by the Chairman. The duties of this committee shall be to make as complete a directory of the regular physicians in this State as possible, and at such times as they deem best to issue a circular letter to these physicians, requesting them to become members of this Asociation and attend its meetings. Each member of this committee will send to the Chairman as accurate and complete a list of the regu-

lar physician residing in his own and adjoining counties as possible.

Sec. 8. The Committee on Legislation shall consist of six members appointed by the President for a term of three years, who shall reside at the capital of the State, provided that at the first appointment under this By-Law, two shall be appointed for one year, two for two years and two for three years. Subsequent appointments to fill expired terms shall be for three years. Vacancies that may occur from other causes shall be filled by appointment for the unexpired term.

It shall be the duty of the Committee on Legislation to take cognizance of any question that may be referred to it by the Associaton, to resist any undesirable change or the repeal of any salutary medical law of the State, and to frame such bills and assist in securing such legislation as may seem beneficial or necessary, and to aid as far as may be practicable in the discovery and prosecution of all violators of statutes relating directly to the practice of medicine in this State.

Sec. 9. The Auditing Committee shall consist of three members appointed by the President on the morning of the first day of the meeting. They shall examine, verify and audit the books and accounts of the various officers, and report their findings to the meeting on or before the morning of the third day.

ARTICLE VI.

Membership.

Section 1. Any member, for old age, length of service, or other good reasons, can, upon the recommendation of the Board of Censors, be elected to an honorary membership without dues; otherwise they shall be governed by the rules applying to active members.

Sec. 2. The names of all applicants for membership, whose application is indorsed by two members of this Association, and accompanied by the initiation fee, shall first be presented to the Association through the Secretary and then referred to the Board of Censors, who shall report their action to the meeting for adoption.

Sec. 3. Any physician qualifying under Article II., Section 1, of the Constitution, whose application is vouched for by two members of this Association and accompanied by the initiation fee, may, on the discretion of the President, be accepted before Association convenes, as a temporary member. Such membership can be made regular only by the action of the Association as provided for in Article VI., Section 2, of the By-Laws.

ARTICLE VII.

Finance.

Section 1. Each member on admission shall pay an initiation fee of five dollars, which shall include his dues for the first year.

Sec. 2. Each member shall pay in advance the sum of three dollars annually thereafter.

Sec. 3. All members who have neglected to pay their dues for two years shall be reported to the Board of Censors by the Secretary and Treasurer. The Board of Censors shall have the power to forfeit the membership of such delinquents. The Secretary and Treasurer will notify the members of the action of said Board and the state of their account.

Sec. 4. No physician who is in any way indebted to the Association will be eligible to membership until such indebtedness is canceled.

ARTICLE VIII.

Papers.

Section 1. The titles of all papers to be read at any annual meeting shall be furnished the Chairman of the Program Committee thirty days before the meeting.

Sec. 2. Not more than twenty minutes shall be occupied in reading any paper. No speaker shall be allowed to speak a second time on the same subject, nor consume more than five minutes in the discussion.

Sec. 3. No paper shall occupy over twenty pages of the Transactions.

Sec. 4. The Publication Committee shall decline to publish any paper not handed to the Secretary complete before the final adjournment of the annual meeting.

Sec. 5. No paper shall be read before the Association that has already been published, or that has been read before any other body.

Sec. 6. A member presenting a paper must be present at the meeting in order to have it published in the Transactions.

ARTICLE IX.

Quorum.

Section 1. The members present shall constitute a quorum for all business excepting the admission of new members or acting upon amendments to the Constitution and By-Laws, when not less than twenty-five members must be in attendance.

ARTICLE X.

Decorum.

Section 1. No remarks reflecting upon the personal or

professional character of any member shall be in order at any meeting, except when introduced by the Board of Censors.

ARTICLE XI.

Stenographer.

Section 1. The Association each year shall appoint an official stenographer.

ARTICLE XII.

Rules.

"Roberts' Rules of Order" shall be accepted as a parliamentary guide in the deliberations of the Association.

ARTICLE XIII.

Section 1. These By-Laws may be changed or amended at any regular meeting by a two-thirds majority of those present and voting.

ARTICLE XIV.

Prize Essay Fund.

Section 1. The Medical Association this day covers into its treasury, as a loan, the "Prize Essay Fund," amounting to $151.69. The Association agrees to pay an annual interest of six per cent. on this fund.

Sec. 2. The Association hereby repeals Article V., Section 10 of the By-Laws. Section 10 created a "Committee on Prize Essay," consisting of five members appointed by the President, and were custodians of this fund.

CODE OF ETHICS

OF THE

American Medical Association.

Of the Duties of Physicians to their Patients and of the Obligations of Patients to their Physicians.

ARTICLE I.

DUTIES OF PHYSICIANS TO THEIR PATIENTS.

The Physician's Responsibility.

Section 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. These obligations are the more deep and enduring, because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health and the lives of those committed to their charge depend on their skill, attention and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *firmness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect and confidence.

Humanity, Delicacy and Secrecy Needed.

Sec. 2. Every case committed to the charge of a physician shoud be treated with attention, steadiness and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted in their professional visits should be used with discretion and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional services; none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance should ever be divulged by the physician except when he is imperatively required to do so. The force and necessity of this obligation are indeed so great that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

Frequency of Visits.

Sec. 3. Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and render him liable to be suspected of interested motives.

Honesty, with Wisdom, in Prognosis.

Sec. 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism by magnifying the importance of his services in the treat-

ment or cure of the disease. But he should not fail on proper occasions to give to the friends of the patient timely notice of danger when it really occurs; and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquillity of the most resigned in their last moments. The life of a sick person can be shortened not only by the acts, but also by the words or the manner of the physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

Incurable Cases Not to Be Neglected.

Sec. 5. A physician ought not to abandon a patient because the case is deemed incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance, under such circumstances, would be sacrificing to fanciful delicacy and mistaken liberality, that moral duty which is independent of, and superior to, all pecuniary consideration.

Consultations—When Necessary.

Sec. 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy and more enlarged views in practice.

Judicious Counsel to Patients.

SEC. 7. The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients suffering under the consequences of vicious conduct, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offense, if they be proffered with politeness, and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ARTICLE II.

OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

Recognition of Duty by Patient to Physician.

SECTION 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties toward the community, and who are required to make so many sacrifices of comfort, ease and health for the welfare of those who avail themselves of their services, certainly have a right to expect and require that their patients should entertain a just sense of the duties which they owe to their medical attendants.

Properly Qualified Physician to be Chosen.

SEC. 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

Constancy to One Physician.

SEC. 3. Patients should prefer a physician whose hab-

its of life are regular, and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations. A patient should, also, confide the care of himself and family, as much as possible, to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits and predispositions of those he attends is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

Honesty in Statements to the Physician.

Sec. 4. Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is more important, as many diseases of a mental origin stimulate those depending on external causes and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a

painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

Useless Details to be Avoided.

SEC. 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

Implicit Obedience to Medical Directions Required.

SEC. 6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink and exercise. As patients become convalescent they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever that may be recommended to them by the self-constituted doctors and doctresses who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

Visits of Non-Attending Physician to be Avoided.

SEC. 7. A patient should, if possible, avoid even the *friendly visits of a physician* who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him without the express consent of his own medical attendant. A patient should never send for a consulting physician. It is of great importance that physicians should act in concert; for, although their modes of treatment may be attended with equal success when applied singly, yet conjointly they are very likely to be productive of disastrous results.

Dismissal of Physician.

SEC. 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

Physician's Convenience to be Considered.

SEC. 9. Patients should always, when practicable, send for their physician in the morning, before his usual hour for going out; for by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

Value of Service to be Appreciated.

SEC. 10. A patient should, after his recovery, entertain a just and endearing sense of the value of the services rendered him by his physician; for these are of such a character that no mere pecuniary acknowledgment can repay or cancel them.

Of the Duties of Physicians to Each Other and to the Profession at Large.

ARTICLE I.

DUTIES FOR THE SUPPORT OF PROFESSIONAL CHARACTER.

Obligation to Maintain Honor of Profession.

Section 1. Every individual on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members; should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors who have, by their labors, brought it to the elevated condition he finds it.

Certification of Irregulars to be Avoided.

SEC. 2. It is not in accord with the interests of the public or the honor of the profession that any physician or medical teacher should examine or sign diplomas or cer-

tificates of proficiency for, or otherwise be specially concerned with, the graduation of persons whom they have good reason to believe intend to support and practice any exclusive and irregular system of medicine.

Purity of Character and Temperance.

Sec. 3. There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required, than the medical; and to attain such eminence is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he can not command their respect and confidence, and to both, because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent on the faculty to be temperate in all things, for the practice of physics requires the unremitting exercise of a clear and vigorous understanding; and in emergencies, for which no professional man should be unprepared, a steady hand, an acute eye and an unclouded head may be essential to the well-being, and even to the life, of a fellow-creature.

Advertising Methods to be Avoided.

Sec. 4. It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or hand-bills, inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or to suffer such publications to be made; to invite laymen to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

Patents and Secret Nostrums.

Sec. 5. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine, or to dispense a secret *nostrum,* whether it be the composition or exclusive property of himself or others. For if such nostrum be of real efficacy any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines or in any way to promote the use of them.

ARTICLE II.

PROFESSIONAL SERVICES TO EACH OTHER.

Gratuitous Services to Fellow Physicians.

Section 1. All practitioners of medicine, their wives, and their children while under paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment and produce timidity and irresolution in his practice. Under such circumstances medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends.

But if a distant member of the faculty, whose circumstances are affluent, requests attendance, and an honorarium be offered, it should not be declined; for no pecuniary obligation ought to be imposed which the party receiving it would wish not to incur.

ARTICLE III.

OF THE DUTIES OF PHYSICIANS AS RESPECTS VICARIOUS OFFICES.

Attention to Absent Physician's Patients.

Secton 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interest and character of the family physician, and when exercised for a short period all the pecuniary obligations for such services should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he can not be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy, without awarding to the physician who officiates the fees arising from the discharge of his professional duties.

In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ARTICLE IV.

OF THE DUTIES OF PHYSICIANS IN REGARD TO CONSULTATIONS.

Who Are to be Met in Consultation.

Section 1. A regular medical education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by the Association, and who is of good moral and professional standing in the place where he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner or a fit associate in consultation whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and the aids actually furnished by anatomy, physiology, pathology and organic chemistry.

Rivalry and Jealousy to be Avoided.

Sec. 2. In consultations, no rivalship or jealousy should be indulged; candor, probity and all due respect should be exercised toward the physician having charge of the case.

Order of Questioning.

Sec. 3. In consultations the attending physician should be the first to propose the necessary questions to the sick; after which the consulting physician should have the op-

portunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinion which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no *opinions or prognostications* should be delivered which are not the result of previous deliberation and concurrence.

Delivering of Opinions.

Sec. 4. In consultations, the physician in attendance should deliver his opinion first; and when there are several consulting, they should deliver their opinions in the order in which they have been called. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variation, and the reasons for it, ought to be carefuly detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanation must be made by him at the next consultation.

Punctuality in Consultation.

Sec. 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations together, and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any pres-

ent occupation. But as professional engagements may sometimes interfere and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will, of course, see the patient and prescribe; but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which case he may examine the patient, and give his opinion in *writing and under seal,* to be delivered to his associate.

Theoretical Discussions to be Avoided.

Sec. 6. In consultations, theoretical discussions should be avoided, as occasioning perplexity and loss of time. For there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

Discussions to be Secret and Confidential.

Sec 7. All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure.

Conflicts of Opinion.

Sec. 8. Should an irreconcilable diversity of opinion occur where several physicians are called upon to consult together, the opinion of the majority should be considered as decisive: but if the numbers are equal on each side, then the decision should rest with the attending physician. It

may, moreover, sometimes happen that two physicians can not agree in their views of the nature of a case and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions, as far as they can be justified by a conscientious regard for the dictates of judgment. But in the event of its occurrence, a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from any further deliberation in the consultation, or participation in the management of the case.

Special Consultations.

Sec. 9. As circumstances sometimes occur to render a *special consultation* desirable, when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases should sedulously guard against all future unsolicited attendance. As such consultations require an extraordinary portion of both time and attention, at least a double honorarium may be reasonably expected.

Consultant to Scrupulously Regard Rights and Standing of Attending Physician.

Sec. 10. A physician who is called upon to consult should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified as far as can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed

in him, or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities which are too often practiced by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ARTICLE V.

DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE.

Qualifications Only the Basis of Practice.

Section 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications; not on intrigue or artifice.

Patients of Other Physicians.

Sec. 2. A physician, in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made—no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

Circumspection as Regards Visits.

Sec. 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no particular inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

Duty as Regards Patients Recently in Charge of Other Physicians.

Sec. 4. A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances, no unjust and liberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are naturally protracted, the want of success, in the first stage of treatment affords no evidence of a lack of professional knowledge and skill.

Urgency Cases.

Sec. 5. When a physician is called to an urgent case because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

Duty When Called with Other Physicians.

Sec. 6. It often happens in case of sudden illness, or of recent accidents and injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family

physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter on his arrival.

Duty as Regards Calls to Other Physician's Patients.

Sec. 7. When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant and with the consent of the patient, to surrender the case.

(The expression "patient of another practitioner" is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness or departure from home of the latter, or who may have called for his attendance during his absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.)

Emergency Advice.

Sec. 8. A physician, when visiting a sick person in the country, may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such occasion is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no future direction unless it be expressly desired; and, in this last case, to request an immediate consultation with the practitioner previously employed.

Free Advice to the Well-to-do to be Avoided.

Sec. 9. A wealthy physician should not give advice *gratis* to the affluent; because his doing so is an injury to

his professional brethren. The office of a physician can never be supported as an exclusively beneficent one; and it is defrauding, in some degree, the common funds for its support when fees are dispensed with which might justly be claimed.

Special Midwifery Attendance.

Sec. 10. When a physician who has been engaged to attend a case of midwifery is absent, another is sent for; if delivery is accomplished during the attendance of the latter, he is entitled to fee, but should resign the patient to the practitioner first engaged.

ARTICLE VI.

OF DIFFERENCES BETWEEN PHYSICIANS.

"Courts-Medical."

Section 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur and cannot be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or a *court-medical.*

Non-Publicity of Medical Differences.

Sec. 2. As peculiar reserve must be maintained by physicians toward the public, in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of medical men may be painfully assailed in their intercourse with each other, and which cannot be understood or appreciated by general society, neither the subject-matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ARTICLE VII.

OF PECUNIARY ACKNOWLEDGMENT.

Fee Bills.

Some general rules should be adopted by the faculty, in every town or district, relative to *pecuniary acknowledgments* from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

Of the Duties of the Profession to the Public and of the Obligations of the Public to the Profession.

ARTICLE I.

DUTIES OF THE PROFESSION TO THE PUBLIC.

Professional Duties to the Public.

Section 1. As good citizens, it is the duty of physicians to be very vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene and legal medicine. It is their province to enlighten the public in regard to quarantine regulations; the location, arrangement and dietaries of hospitals, asylums, schools, prisons, and similar institutions; in relation to medical police of towns, as drainage, ventilation, etc.; and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence pre-

vails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

Physicians as Witnesses.

Sec. 2. Medical men should also be always ready, when called on by the legally constituted authorities, to enlighten coroners' inquests and courts of justice on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poison or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a post-mortem examination, it is just, in consequence of the time, labor and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarium.

Limits of Gratuitous Public Service.

Sec. 3. There is no profession by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limits should be placed to the performance of such good offices. Poverty, professional brotherhood, and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform militia duty, or to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without a pecuniary acknowledg-

ment. But to individuals in indigent circumstances, such professional services should always be cheerfully and freely accorded.

Lay Enlightenment as to Quackery, Etc.

Sec. 4. It is the duty of physicians, who are frequent witnesses of the enormities committed by quackery, and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ARTICLE II.

OBLIGATIONS OF THE PUBLIC TO PHYSICIANS.

Proper Appreciation of Physicians.

Section 1. The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficiaries of the profession, are so numerous and important that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism; to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute books to exhibit the anomaly of exacting knowledge

from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

EXPLANATORY DECLARATIONS.

Whereas, Persistent misrepresentations have been and still are being made concerning certain provisions of the Code of Ethics of this Association, by which many in the community, and some in the ranks of the profession, are led to believe those provisions exclude persons from professional recognition simply because of differences of opinions or doctrines; therefore,

1. *Resolved,* That clause first, of Art. IV., in the National Code of Medical Ethics, is not to be interpreted as excluding from professional fellowship, on the ground of differences in doctrine or belief, those who in other respects are entitled to be members of the regular medical profession. Neither is there any other article or clause of the said Code of Ethics that interferes with the exercise of the most perfect liberty of individual opinion and practice.

2. *Resolved,* That it constitutes a voluntary disconnection or withdrawal from the medical profession proper, to assume a name indicating to the public a sectarian, or exclusive system of practice, or to belong to an association or party antagonistic to the general medical profession.

3. *Resolved,* That there is no provision in the National Code of Medical Ethics in any wise inconsistent with the broadest dictates of humanity, and that the article of the Code which relates to consultations can not be correctly interpreted as interdicting, under any circumstances, the rendering of professional services whenever there is a pressing or immediate need of them. On the contrary, to meet the emergencies occasioned by disease or accident, and to give a helping hand to the distressed with-

out unnecessary delay, is a duty fully enjoined on every member of the profession, both by the letter and the spirit of the entire Code.

But no such emergencies or circumstances can make it necessary or proper to enter into formal professional consultations with those who have voluntarily disconnected themselves from the regular medical profession, in the manner indicated by the preceding resolution.

N. S. DAVIS, of Chicago.
A. Y. P. GARNETT, of Washington.
H. F. CAMPBELL, of Augusta, Ga.
AUSTIN FLINT, of New York.
J. B. MURDOCK, of Pittsburg.

On motion of Dr. Brodie the resolutions were unanimously adopted.

On motion of Dr. Keller, it was unanimously agreed that the resolutions be added as an explanatory addendum in all future publications of the Code.

ROLL OF MEMBERS.

OF THE

Medical Association of Georgia.

1901.

ARRANGED ALPHABETICALLY.

ABBREVIATIONS—P., President; V.-P., Vice-President; S., Secretary; C. S., Corresponding Secretary; T., Treasurer; O., Orator; C., Censor; indicating the offices the members hold or have held.

Members are particularly requested to notify the Secretary promptly on making any changes in their post-offices.

The Secretary will esteem it a favor if any member will write him at once on noticing any inaccuracy or omission in the roll.

Name.	Post-office.	County.	Admitted.
Adair, W. J	Rockmart	Polk	1897
Adair, R. E	Taylorsville	Bartow	1897
Adams, F. L	Critie	Elbert	1899
Alexander, Orlando L	Reidsville	Tattnall	1899
Alexander, G. L	Forsyth	Monroe	1894
Alexander, W. H	Blakely	Early	1900
Allen, L. C	Hoschton	Jackson	1900
Allen, H D	Milledgeville	Baldwin	1891
Amason, C. T	Nielly	Telfair	1897
Amster, L	Atlanta	Fulton	1894
Anchors, H. L	James	Jones	1899
Anderson, N. Z	Eudora	Jasper	1894
Anderson, J. M	Shiloh	Harris	1900
Anderson, J. F	Clinton	Jones	1901
Anthony, E. R. (V.-P.)	Griffin	Spalding	1887
Armstrong, W. B	Atlanta	Fulton	1900
Ashford, J. W	Madison	Morgan	1900
Avant, A. L. R	Patterson	Pierce	1895

Name.	Post-office.	County.	Admitted.
Avary, Arch	Atlanta	Fulton	1887
Avary, J. C	Atlanta	Fulton	1889
Bacon, W. W	Albany	Dougherty	1890
Bailey, J. W	Gainesville	Hall	1861
Bailey, E. M	Acworth	Cobb	1899
Baker, Thos. N	Cordele	Dooly	1899
Baird, Jas. B. (s., o., p.)	Atlanta	Fulton	1872
Baker, E. L	Dublin	Laurens	1897
Baldwin, M. A	Cuthbert	Randolph	1890
Barnum, R. E. L	Richland	Stewart	1892
Barron, R. B. (v.-p., o.)	Macon	Bibb	1884
Barton, W. B	Morrow	Clayton	1899
Battey, W. W	Augusta	Richmond	1896
Baxton, Thos. A	Girard	Burke	1901
Bedingfield, S. T	Omaha	Stewart	1894
Bell, A. K	Madison	Morgan	1889
Bell, W. Jay	Atlanta	Fulton	1900
Belt, L. J	Millen	Screven	1888
Benedict, S. C. (o., c., p.)	Athens	Clarke	1883
Benson, Chas. F	Atlanta	Fulton	1897
Benson, M. F	Atlanta	Fulton	1900
Brigham, Wm. R	Dublin	Laurens	1898
Binion, W. W	Benevolence	Randolph	1893
Bishop, W. H	Roopville	Carroll	1900
Bivins, T. F	Vienna	Dooly	1897
Bizzell, B. W	Atlanta	Fulton	1894
Black, A. H	Thomaston	Upson	1893
Blalock, W. J	Atlanta	Fulton	1894
Bloomfield, Jas. C	Augusta	Richmond	1890
Borders, D. J	Red Bud	Gordon	1899
Bourns, F. S	Manilla	Philippine Isl'ds	1897
Bowie, J. W	Wade	Emanuel	1900
Boyd, A. F	Savannah	Chatham	1891
Boyd, Edward W	Atlanta	Fulton	1897
Boyett, A. S	Friendship	Sumter	1897
Boynton, Chas. E	Atlanta	Fulton	1900
Boynton, R. L	Geneva	Talbot	1899
Bozeman, E. K	Forsyth	Monroe	1892
Bradley, Francis	Atlanta	Fulton	1900
Bradley, John H	Dublin	Laurens	1899
Brannon, J. W. L	Pavo	Thomas	1900
Brawner, Jas. N	Atlanta	Fulton	1900
Brasselton, B. F	Pendergrass	Jackson	1898

Name.	Post-office.	County.	Admitted.
Brewster, Warren A.	Augusta	Richmond	1901
Brightwell, Chas. P.	Augusta	Richmond	1901
Brock, C. O.	Brockton	Jackson	1901
Brooks, H., Jr	Waycross	Ware	1901
Bryan, J. A	Pendergrass	Jackson	1898
Bridges, B. L.	Ellaville	Schley	1897
Brigham, J. C.	Girard	Burke	1891
Brown, M. S.	Fort Valley	Houston	1894
Brown, George.	Atlanta	Fulton	1899
Bruce, W. W	Thomasville	Thomas	1881
Bryans, R. G.	Jackson	Butts	1890
Bryant, W. C.	Jackson	Butts	1900
Bryant, W. J	Summerville	Chattooga	1892
Bullard, W. M.	Monticello	Jasper	1897
Bullard, J. H.	Machen	Jasper	1897
Bullard, William L	Columbus	Muscogee	1900
Burdett, J. R	Tennille	Washington	1889
Burford, H.	Brunswick	Glynn	1888
Burford, R. E. L	Brunswick	Glynn	1890
Burns, J. K.	Clarkesville	Habersham	1897
Burrows, L. K.	Carnesville	Franklin	1899
Burt, A. Moody	Macon	Bibb	1896
Bush, E. B.	Colquitt	Miller	1895
Bush, O. B.	Colquitt	Miller	1897
Butler, P. M.	Atlanta	Fulton	1894
Butts, R. M.	Gordon	Wilkinson	1892
Caldwell, Frank H.	Waycross	Ware	1898
Calhoun, A. T.	Cartersville	Bartow	1894
Calhoun, A. W. (V-P., C., P)	Atlanta	Fulton	1874
Callaway, Enoch	LaGrange	Troup	1895
Callaway, J. A	Milledgeville	Baldwin	1888
Campbe l, J. L.	Atlanta	Fulton	1894
Campbell, Wm. E	Atlanta	Fulton	1900
Carson, M. F.	Griffin	Spalding	1897
Carter, W. D.	Winterville	Clarke	1898
Carswell, N. T.	Macon	Bibb	1897
Cartledge, E. C.	Atlanta	Fulton	1900
Cato, F. L.	DeSoto	Sumter	1893
Cato, R. E.	Americus	Sumter	1893
Chambers, A. S.	Inman	Fayette	1900
Champion, W. L.	Atlanta	Fulton	1894
Chapman, Geo. L	Dublin	Laurens	1897
Chappell, Guy	Bronwood	Terrell	1897

Name.	Post-office.	County.	Admitted.
Christian, J. M	Celeste		1898
Chason, J. D	Bainbridge	Decatur	1895
Chason, Thomas	Donaldsonville	Decatur	1895
Cheatham, W. B	Dawson	Terrell	1880
Childs, J. A	Atlanta	Fulton	1894
Clark, M. A	Macon	Bibb	1893
Clark, P. S	Darien	McIntosh	1890
Clark, John B	Eastman	Dodge	1899
Clarke, L. B	Atlanta	Fulton	1900
Cochran, A. H	Homer	Banks	1901
Coile, F. W	Winterville	Oglethorpe	1897
Coile, J. G	Monticello	Jasper	1897
Cole, J. E	Ruckersville	Elbert	1901
Cole, J. F	Carrollton	Carroll	1884
Coleman, Thos. D	Augusta	Richmond	1891
Coleman, J. D	Henderson	Houston	1897
Collier, T. J	Griffin	Spalding	1899
Collins, Katherine R	Atlanta	Fulton	1894
Comas, P. H	Baxley	Appling	1889
Cook, Jno. O	Savannah	Chatham	1901
Cooper, Hunter P	Atlanta	Fulton	1894
Corson, E. R	Savannah	Chatham	1895
Corbin, M. X	Savannah	Chatham	1898
Cordle, Frank	Trion Factory	Chattooga	1898
Cortelyou, P. R. (v-p.)	Marietta	Cobb	1887
Corry, John A	Newborn	Newton	1900
Cosby, F. L	Box Spring	Talbot	1897
Cox, R. P	Rome	Floyd	1891
Cox, W. J	Gainesville	Hall	1894
Crawford, A. H	Abbeville	Wilcox	1893
Crawford, J. M	Atlanta	Fulton	1888
Crawford, W. B	Lincolnton	Lincoln	1900
Cranford, O. G	Sasser	Terrell	1898
Crichton, L. M	Atlanta	Fulton	1900
Cromer, James D	Atlanta	Fulton	1900
Crowe, W. A	Atlanta	Fulton	1892
Crozier, J. H	Cedar Springs	Early	1889
Culpepper, W. F	Senoia	Coweta	1892
Currie, M. L	Savannah	Chatham	1890
Daniel, J. Wallace	Glenville	Tattnall	1898
Daniel, Jno. W	Savannah	Chatham	1898
Darby, J. I	Americus	Sumter	1893
Davidson, A. A	Augusta	Richmond	1896

Name.	Post-office.	County.	Admitted.
Davidson, A. C.	Sharon	Taliaferro	1887
Davis, E. C	Atlanta	Fulton	1894
Davis, Jeff	Toccoa	Habersham.	1893
Davis, T. B.	Newnan	Coweta.	1892
Davis, Wm. L.	Albany.	Dougherty	1893
Day, J. B. H	Social Circle	Walton	1899
Deadwyler, O. L.	Carlton	Madison	1898
Dean, J. G.	Dawson	Terrell	1889
Dean, W. L.	Woodstock	Cherokee	1894
Denson, E. J.	Allenton	Wilkinson	1897
Des Portes, Wm. L.	Columbus	Muscogee	1899
Dillard, Jas. B.	Davisboro	Washington	1901
Dorminy, J. N.	Kerns	Dooly	1901
Dostor, B. R. (V.-P.)	Blakely	Early	1873
Doughty, Wm. H. (C.)	Augusta.	Richmond	1857
Doughty, Wm. H., Jr. (V.-P.)	Augusta	Richmond	1880
Douglass, J. E.	Cuthbert.	Randolph	1889
Douglass, J. B.	Talbotton	Talbot	1897
Dozier, R. T.	Milledgeville	Baldwin	1893
Drake, C. M	Manilla	P. I.	1897
Drewry, T. Ellis	Griffin	Spalding	1892
Drewry, N. B.	Griffin.	Spalding	1897
Duggan, J. H	Stephensville	Wilkinson	1884
Duncan, J. W.	Atlanta	Fulton.	1883
Dupre, Ira E.	Danville.	Twiggs	1897
Earnest, J. G.	Atlanta	Fulton.	1882
Eberhardt, B. F	Gillsville	Hall.	1898
Eberhardt, J. W.	Hartwell.	Hart	1897
Eberhardt, L. P.	Elberton	Elbert	1901
Edenfield, W. N	Pinehurst	Dooly	1897
Edwards, Walter E.	Cordele	Dooly.	1899
Elder, Eugene B.	Indian Springs.	Butts	1900
Elder, S. A	High Shoals	Oconee	1900
Elkin, W. S.	Atlanta	Fulton.	1882
Elliott, W. H. (P.)	Savannah	Chatham	1884
Ellis, S. T	Hagan	Johnson	1896
Ellis, J. A.	Atlanta	Fulton	1899
Embry, B. L.	Villa Rica.	Carroll	1900
Emery, W. B.	Atlanta	Fulton.	1900
Erwin, Geo. C	Young Harris	Towns.	1899
Evans, J. H.	Davisborough	Washington	1897
Eve, Hinton J.	Augusta	Richmond	1901

Name.	Post-office.	County.	Admitte
Farmer, J. L	Savannah	Chatham	1897
Favre, Paul	Fayetteville	Fayette.	1900
Felder, L. A	Atlanta	Fulton	1894
Fincher, T. H. P	Jersey	Walton	1901
Fischer, L. C	Atlanta	Fulton	1900
Fitch, W. E	Savannah	Chatham	1898
Fite, B. W	Resaca	Gordon	1899
Fitts, W. L.	Carrollton	Carroll	1890
Fitts, P. W.	Mountville	Troup	1897
Folks, G. P	Waycross	Ware	1890
Ford, DeSausurre (V.-P., C., P.)	Augusta.	Richmond	1857
Foster, Eugene (V.-P., C., P.)	Augusta.	Richmond	1875
Foster, J. J	College Park	Fulton	1900
Fowler, A. L	Atlanta	Fulton	1900
Frederick, H. F	Grovania	Houston	1897
Fulcher, M. O.	Waynesboro	Burke	1895
Fullilove, H. M	Athens	Clarke	1900
Furse, R. L	Monticello	Jasper	1900
Fussell, J. C	Fitzgerald	Irwin	1899
Gann, Wm. F	Columbus	Muscogee	1891
Gardner, J. F	Ashburn	Worth	1899
Garland, J. T.	Hillsboro.	Jasper.	1889
Garlington, T. R.	Rome	Floyd	1893
Gaston, J. McF., Jr	Atlanta	Fulton	1894
Gaulden, Samuel S	Quitman	Brooks	1892
Gerdine, John (C., V.-P.)	Athens	Clarke	1882
Gewinner, N. G	Macon.	Bibb.	1899
Gheesling, J. H	Greensboro.	Greene	1891
Gillespie, J. W	Albany.	Dougherty	1897
Goethe, J. E	Ocilla.	Irwin	1897
Goldsmith, W. S	Atlanta	Fulton.	1893
Goneke, L. C.	Dawson	Terrell	1897
Goodrich, E. C. (T.)	Augusta	Richmond	1876
Goodrich, W. H	Augusta	Richmond	1900
Goolsby, R. C.	Juliette	Monroe	1891
Goss, I. H	Athens	Clarke	1877
Graham, St. J. B	Savannah	Chatham	1898
Green, Geo. F	Dublin	Laurens	1900
Green, S. H.	Oakdale	Fulton	1892
Green, J. H.	Decatur	DeKalb	1900
Green, J. H.	Hartsfield	Colquitt	1899
Green, Wm. L.	Point Peter.	Oglethorpe	1901
Geer, Chas. C	Atlanta	Fulton	1900

Name.	Post-office.	County.	Admitted.
Griffin, Archie	Luke	Wilcox	1900
Griffin, W. C	Cartersville	Bartow	1897
Griffith, Jas. I	Atlanta	Fulton	1897
Grimes, George J	Columbus	Muscogee	1872
Guinn, J. A	Conyers	Rockdale	1896
Hall, Henry M	Cedartown	Polk	1900
Hall, M. R	Warrenton	Warren	1900
Hall, J. R	Carnesville	Franklin	1898
Hall, Thos. M	Milledgeville	Baldwin	1899
Hammond, J. H	LaFayette	Walker	1898
Hamrick, James D	Carrollton	Carroll	1899
Hancock, Thos. H	Atlanta	Fulton	1896
Harbin, R. M	Rome	Floyd	1894
Hardeman, John	Haddocks	Jones	1899
Hardin O. N	Homer	Banks	1901
Hardman, L. G. (v.-p.)	Harmony Grove	Jackson	1877
Hardman, W. B	Harmony Grove	Jackson	1892
Hardon, Virgil O. (o.)	Atlanta	Fulton	1886
Harrison, W. H., Jr	Augusta	Richmond	1886
Harrison, E. S	Thomson	McDuffie	1897
Harrison, James G	Sparta	Hancock	1899
Harris, E. A	Midville	Burke	1893
Harris, R. B	Savannah	Chatham	1885
Harvard, Virgil O	Arabi	Dooly	1900
Hawkins, A. M. F	Ball Ground	Cherokee	1891
Haygood, A. G	Oxford	Newton	1899
Henderson, J. R	Sun Hill	Washington	1884
Herman, J. D	Eastman	Dodge	1884
Hicks, Charles (c.)	Dublin	Laurens	1884
Hiers, J. Lawton (v.-p.)	Savannah	Chatham	1895
Hightower, R. H	Dublin	Laurens	1899
Hill, J. J	Washington	Wilkes	1880
Hill, W. S	Pelham	Mitchell	1900
Hilsman, A. H	Albany	Dougherty	1901
Hilsman, P. L	Albany	Dougherty	1871
Hobgood, L. M	Fairburn	Campbell	1900
Hobbs, A. G	Atlanta	Fulton	1882
Hoke, Michael	Atlanta	Fulton	1901
Holbrook, W. H	Dalton	Whitfield	1900
Holland, M. M	Statesboro	Bullock	1899
Holliday, A. C	Athens	Clarke	1897
Holliday, W. Z	Augusta	Richmond	1884
Holmes, J. B. S. (v.-p., p.)	Atlanta	Fulton	1872

Name.	Post-office.	County.	Admitted.
Holmes, W. B	Wadley	Jefferson	1899
Holt, W. F. (V.-P., P.)	Macon	Bibb	1867
Hood, J. W	Atlanta	Fulton	1894
Hopkins, J. G. (C., V.-P.)	Thomasville	Thomas	1890
Horrocks, J. Marion	Thomasville	Thomas	1893
Horsley, J. S.	West Point	Troup	1894
Horsley, J. S., Jr	West Point	Troup	1896
Hubbard, F. M	Harmony Grove	Jackson	1900
Hubbard, T. V	Atlanta	Fulton	1896
Hudson, P. L	Cochran	Pulaski	1896
Huguley, G. Pope	Barnesville	Pike	1899
Hull, Marion McH	Atlanta	Fulton	1900
Humphries, J. R	Acworth	Cobb	1876
Humphries, W. C	Acworth	Cobb	1890
Hunter, A. P	Tifton	Berrien	1899
Hurt, Charles D. (C.)	Atlanta	Fulton	1890
Hutchins, M. B	Atlanta	Fulton	1892
Ingram, H. R	Maye	Clay	1900
Izlar, R. P	Waycross	Ware	1898
Jackson, Max	Macon	Bibb	1897
Jarrell, J. A	Jackson	Butts	1899
Jarrell, J. G	Savannah	Chatham	1899
Jelks, E. L	Quitman	Brooks	1896
Jelks, N. P	Hawkinsville	Pulaski	1882
Jenkins, C. J	Edison	Calhoun	1900
Jernigan, Charles S.	Sparta	Hancock	1899
Johnson, J. Clarence	Atlanta	Fulton	1894
Johnson, James C	Macon	Bibb	1875
Johnson, L. M	Rowland	Upson	1893
Johnson, W. A	Rome	Floyd.	1897
Joiner, B. L	Andersonville	Sumter	1897
Jones, Henry A	Millen	Screven	1898
Jones, H. H	Hartsfield	Colquitt	1899
Jones, Louis H. (S. & TR.)	Atlanta	Fulton	1890
Jones, L. M	Milledgeville	Baldwin	1880
Jones, T. S	Jeffersonville	Twiggs	1893
Keaton, P. H	Kestler		1889
Kelley, T. J	Tennille	Washington	1884
Kemp, A. Pierce	Barnesville	Pike	1899
Kendrick, W. S (O.)	Atlanta	Fulton	1874
Kenyon, O. T.	Dawson	Terrell.	1892

Name.	Post-office.	County.	Admitted.
Kennedy, J. P.	Atlanta	Fulton	1900
Kime, R. R.	Atlanta	Fulton	1892
King, Campbell C.	White Plains	Green	1900
King, J. C.	Atlanta	Fulton	1896
Kennebrew, E. R.	Athens	Clarke	1898
Lancaster, J. F.	Forsyth	Monroe	1884
Lane, L. P.	Stillmore	Emanuel	1895
Lanier, Sidney J.	Savannah	Chatham	1890
Latimer, J. H.	Waycross	Ware	1897
Lattimore, Ralston	Savannah	Chatham	1898
Lawrence, G. A.	Haddocks	Jones	1897
Lewis, F. L.	Camilla	Mitchell	1897
Lewis, J. H.	Graves	Terrell	1900
LeConte, J. N.	Atlanta	Fulton	1900
Lee, Walter W.	Gordon	Wilkinson	1897
LeHardy, J. C. (T., V.-P.)	Savannah	Chatham	1868
Liddell, J, A.	Cedartown	Polk	1899
Little, Wm. J.	Macon	Bibb	1898
Lockhart, B. W.	The Glades	Hall	1899
Lockhart, V. D. (V.-P.)	Mayesville	Banks	1891
Lokey, H. M.	Athens	Clarke	1900
Lothridge, F. M.	Homer	Banks	1901
Love, W. F.	Crawford	Oglethorpe	1899
Loyd, R. C.	Flat Creek	Fayette	1900
Lovvorn, J. L.	Bowdon	Carroll	1894
Lovvorn, R. M.	Bowdon	Carroll	1896
Lyle, W. C.	Augusta	Richmond	1896
Mann, John O.	Elko	Houston	1899
McAfee, Jno. C.	Macon	Bibb	1899
McArthur, Thos. J.	Unadilla	Dooly	1897
McBath, W. L.	Avalon	Franklin	1900
McCreary, H. L.	Royston	Franklin	1899
McCurry, I. L.	Toccoa	Habersham	1897
McDaniel, J. L.	Atlanta	Fulton	1896
McDuffie, James H.	Columbus	Muscogee	1893
McHatton, H. (C., V.-P.)	Macon	Bibb	1883
McIntosh, T. M.	Thomasville	Thomas	1874
McJunkin, J.	Toccoa	Habersham	1898
McKinnon, J. K.	White Oak	Camden	1895
McLean, J. L.	Birdford	Tattnall	1897
McMaster, D. E.	Tennille	Washington	1894
McMaster, H. B. (C., V.-P.)	Waynesboro	Burke	1888

Name.	Post-office.	County.	Admitted.
McMath, J. F.	Andersonville	Sumter	1897
McRae, A. B	Seville	Wilcox	1893
McRae, F. W	Atlanta	Fulton	1887
Mack, Alexander	Austell	Douglas	1897
Mallory, R. A	Concord	Pike	1893
Maloy, W. C	Rhine	Dodge	1893
Malone, J. D	Marietta	Cobb	1891
Mangham, J. E	Reynolds	Taylor	1897
Marchman, H. R	Villa Rica	Carroll	1900
Mathis, A	Sandersville	Washington	1872
Matthews, M. F	Athens	Clarke	1898
Matthews, S. M	Quitman	Brooks	1890
Mathews, W. J	Middleton	Elbert	1892
Mathews, A. B	Elberton	Elbert	1901
Mayhew, James	Sutallee	Cherokee	1900
McDonald, J. M	McDonald	Coffee	1901
McLaws, R. B	Augusta	Richmond	1901
McNaughton, Wm. J	Augusta	Richmond	1901
Merrill, E. L	Turin	Coweta	1900
Merritt, Thos. M	Calvary	Decatur	1895
Miller, B. E	Daisy	Tattnall	1899
Miller, R. L	Tennille	Washington	1901
Mims, S. W	Sylvania	Screven	1899
Minter, H. G	Jakin	Early	1900
Mitchell, T. Emerson	Columbus	Muscogee	1896
Mobley, H. A	Vienna	Dooly	1891
Mobley, Jno. M	Milledgeville	Baldwin	1901
Moncrief, W. Hal	Atlanta	Fulton	1900
Montgomery, A. J	Buff	Gordon	1900
Montgomery, R. O	Atlanta	Fulton	1897
Montgomery, Chas. J	Augusta	Richmond	1895
Moorman, Ivy W	Pekin	Irwin	1900
Moore, K. P (V.-P., P., S., O., T)	Macon	Bibb	1871
Moore, J. M	Macon	Bibb	1897
Moore, Geo. Y	Cuthbert	Randolph	1901
Moreland, A. C	Forsyth	Monroe	1892
Moran, C. A	Atlanta	Fulton	1895
Morgan, J. B. (V.-P., P.)	Augusta	Richmond	1891
Mosley, R. C	Tignall	Wilkes	1899
Moss, W. Hosea	Monroe	Walton	1897
Mountain, George W	Augusta	Richmond	1898
Munroe, Henry S			1893
Murphey, Eugene E	Augusta	Richmond	1900
Murphey, C. E	Atlanta	Fulton	

Name.	Post-office.	County.	Admitted
Neal, J. W	Scotland	Telfair	1892
Neely, John C	Herndon	Burke	1900
New, Jas. E	Dexter	Laurens	1901
Nicolson, Wm. Perrin	Atlanta	Fulton	1883
Niles, George M	Marshallville	Macon	1893
Noble, G. H. (P)	Atlanta	Fulton	1883
Nolan, C. T	Marietta	Cobb	1899
Norton, Geo. M	Savannah	Chatham	1899
Norton, W. E	Savannah	Chatham	1899
Nunn, R. J. (C., V.-P., P.)	Savannah	Chatham	1867
O'Daniel, Mark H (O., C., V.-P.)	Macon	Bibb	1882
O'Daniel, W. A. (O.)	Milledgeville	Baldwin	1886
O'Quinn, Jno. H	Douglas	Coffee	1900
Oertel, T. E	Augusta	Richmond	1900
Oliver, A. S	Elberton	Elbert	1897
Olmsted, J. C	Atlanta	Fulton	1886
Osborne, L. N	Hollingsworth	Banks	1900
Overstreet, Geo. M	Sylvania	Screven	1899
Overstreet, Jas. E	Baxley	Appling	1901
Owens, W. W	Savannah	Chatham	1891
Paige, John D	Savannah	Chatham	1892
Patten, W. L	Milltown	Berrien	1895
Patterson, J. C	Milledgeville	Baldwin	1894
Pattillo, Geo. R	Mayfield	Hancock	1899
Parks, W. B	Atlanta	Fulton	1882
Payne, A. L	Fort Lamar	Madison	1898
Payne, George F	Atlanta	Fulton	1894
Peacock, E. S	Harrison	Washington	1901
Peacock, W. F	Vidalia	Montgomery	1899
Peete, C. H	Macon	Bibb	1893
Pendergrass, O. N	Monroe	Walton	1900
Perkinson, W. Howard	Woodstock	Cherokee	1900
Perry, A. C	Covington	Newton	1900
Perry, M. L	Milledgeville	Baldwin	1901
Perry, Thomas B	U. S. M. Hos. Ser.	Wilmington, N. C.	
Peters, A. B	Moultrie	Colquitt	1897
Peterson, N	Tifton	Berrien	1897
Phillips, S. Latimer	Savannah	Chatham	1890
Phillips, F. H	Harlem	Columbia	1899
Pierce, Geo. Y	Atlanta	Fulton	1900
Pilcher, W. W	Warrenton	Warren	1899

Name.	Post-office.	County.	Admitted.
Pinckney, S. G. C	Atlanta	Fulton	1900
Pirkle, Jno. A	Monroe	Walton	1899
Ponder, W. P	Forsyth	Monroe	1885
Powell, B. C	Villa Rica	Carroll	1896
Powell, John F	Kramer	Wilcox	1893
Powell, T. O. (P.)	Milledgeville	Baldwin	1867
Poer, J. M	West Point	Troup	1900
Prather, Wm. S	Americus	Sumter	1897
Purse, B. S	Savannah	Chatham	1895
Purse, M. A	Atlanta	Fulton	1894
Quillian, D. D	Athens	Clarke	1892
Quillian, H. P	Arp	Banks	1888
Quinn, C. T	Naylor	Lowndes	1893
Rawls, E. H	Savannah	Chatham	1901
Ray, Robt. L	Devereaux	Hancock	1899
Redding, Chas. D	Lindsay	Washington	1897
Redding, J. H	Waycross	Ware	1893
Reid, C. W	Pelham	Mitchell	1897
Reynolds, H. V	Marietta	Cobb	899
Reynolds, W. H	Lexington	Oglethorpe	1899
Richardson, C. H	Montezuma	Macon	1886
Richardson, E. H (O., C., V.-P.)	Atlanta	Fulton	1878
Ridley, F. M. (O., C., P.)	LaGrange	Troup	1887
Ridley, R. B	Atlanta	Fulton	1887
Ripley, E. C	Barnesville	Pike	1897
Rippard, J. C	Waycross	Ware	1898
Roberts, J. B. (V.-P.)	Atlanta	Fulton	1875
Robinson, W. C	Atlanta	Fulton	1897
Robinson, Gilman P	Atlanta	Fulton	1899
Robison, W. R	Milledgeville	Baldwin	1899
Rogers, F. S	Coleman	Randolph	1900
Rogers, J. T	Excelsior	Bulloch	1900
Rogers, J. W	Reynolds	Taylor	1897
Rogers, O. L	Sandersville	Washington	1901
Rogers, W. T	Coleman	Randolph	1893
Rowe, W. J	Buford	Gwinnett	1897
Rose, Jno. R	Eastman	Dodge	1897
Ross, James T	Macon	Bibb	1891
Rosser, J. P	Atlanta	Fulton	1897
Roy, Dunbar	Atlanta	Fulton	1892
Rountree, A. M	Adrian	Emanuel	1901
Roy, G. G	Atlanta	Fulton	1878

Name.	Post-office.	County.	Admitted.
Rudisill, B. F	Forsyth	Monroe	1887
Rudolph, J. B	Gainesville	Hall	1900
Rumble, S	Goggins	Monroe	1891
Sanders, W. E	Arlington	Calhoun	1899
Saunders, Jno. W	Unadilla	Dooly	1897
Scarbrough, J. F	Ben	Dooly	1893
Scott, H. F. (o.)	Atlanta	Fulton	1879
Selman, J. L	Douglasville	Douglas	1901
Sessoms, W. C	Moultrie	Colquitt	1893
Shannon, John R	Cabaniss	Monroe	1893
Sharpe, L. J	Harmony Grove	Jackson	1898
Sharp, C. K	Arlington	Calhoun	1900
Sharp, W. B	Atlanta	Fulton	1900
Shorter, James H	Macon	Bibb	1893
Sibbett, W. F	Douglas	Coffee	1890
Sikes, J. A. B	Iron City	Decatur	1899
Simmons, A. B	Savannah	Chatham	1891
Sims, E. H	Columbus	Muscogee	1892
Sims, F. H	Atlanta	Fulton	1897
Simpson, J. R	Atlanta	Fulton	1894
Simpson, W. T	Smithville	Lee	1892
Singleton, O. G	Fort Valley	Houston	1892
Slack, Henry R	LaGrange	Troup	1893
Smith, A. A. (v.-p., p.)	Hawkinsville	Pulaski	1875
Smith, B. F	Elberton	Elbert	1893
Smith, C. H	Ellaville	Schley	1893
Smith, S. J	Jefferson	Jackson	1897
Smith, K. A	Gainesville	Hall	1899
Smith, W. Monroe	Atlanta	Fulton	1900
Smith, J. C.	Sand Hill	Carroll	1900
Smith, J. G	McDonough	Henry	1900
Smith, Claude A	Atlanta	Fulton	1900
Smith, H. M	Edgewood	Dekalb	1900
Smith, T. C	Downville	Whitfield	1900
Smith, A. C	Coldwater	Elbert	1899
Smith, J. M.	Valdosta	Lowndes	1899
Smith, J. W	Monroe	Walton	1901
Smith, S. S	Watkinsville	Oconee	1901
Sommerfield, J. E	Atlanta	Fulton	1899
Sorrells, R. P	Danielsville	Madison	1887
Spence, J. M., Jr.	Waresboro	Ware	1890
Spence, I. N. B	Social Circle	Walton	1897
Spinks, R. N	Cedartown	Polk	1900
Spratling, Edgar J	Forsyth	Monroe	1900

Name.	Post-office.	County.	Admitted.
Standifer, W. B.	Blakely.	Early.	1886
Stapler, M. M	Macon.	Bibb	1897
Stapleton, John L.	Bronwood	Terrell	1897
Statham, J. R.	Americus.	Sumter.	1900
Stephens, L. P.	Atlanta.	Fulton.	1888
Stewart, W. W.	Columbus.	Muscogee	1892
Stirling, A. W.	Atlanta	Fulton	1896
Stockard, C. C.	Atlanta	Fulton.	1896
Story, J. W.	Dennard	Houston	1897
Story, L. McD	Mistletoe	Columbia.	1901
Story, Warren L.	Sycamore	Irwin	1897
Stovall, C. T.	Vienna	Dooly.	1897
Stovall, A. S. J.	Elberton	Elbert	1886
Stow, M. N.	Mineral Bluff	Fannin	1900
Strickland, H. C.	Mayesville	Banks.	1900
Strickler, C. W.	Atlanta	Fulton.	1900
Stubbs, Geo. H.	Lithia Spring	Douglas	1897
Sullivan, J. S.	Macon	Bibb	1893
Summey, Chas. L.	Stone Mountain.	DeKalb.	1897
Tankersley, J. S.	Ellijay.	Gilmer	1894
Tate, William B. (V.-P)	Tate	Pickens.	1890
Taylor, A. P.	Thomasville	Thomas.	1873
Taylor, R. H. (V.-P., S.)	Griffin.	Spalding	1879
Taylor, W. B.	Dexter.	Laurens.	1901
Terrell, W. W.	Douglas.	Terrell	1897
Terrell, Henry W.	LaGrange	Troup	1900
Tessier, L. P.	Augusta.	Richmond.	1898
Terry, W. R.	Leary.	Calhoun	1897
Thomas, J. M.	Griffin.	Spalding.	1894
Thomas, L. J.	Dublin.	Laurens.	1900
Thomas, D. L.	Eatonton	Putnam	1900
Thomas, D. A. N.	Jersey.	Walton	1900
Thomson, Ralph M.	Meldrim.	Effingham.	1899
Thompson, P. H.	Bluffton	Clay	1886
Thrash, E. C.	Oakland	Meriwether.	1899
Thrasher, T. H.	Ashburn	Worth	1899
Todd, J. S. (O., C., P.)	Atlanta	Fulton.	1872
Toepel, Theodore	Atlanta	Fulton	1901
Torbit, A. M.	St. Clair	Burke.	1901
Toole, John E	Bainbridge.	Decatur.	1900
Travis, W. D	Covington	Newton	1893
Trotter, R. W.	Madison	Morgan.	1894
Trimble, G. C.	East Point	Fulton	1891

Name.	Post-office.	County.	Admitted.
Tucker, W. B	Chipley	Harris	1897
Turk, F. V	Stilesboro	Bartow	1899
Turner, W. J	Ashburn	Dooly	1897
Tyson, J. D	Adrian	Emanuel	1893
Van Goidtsnoven, E	Atlanta	Fulton	1887
Van Horne, J. T	Monroe	Walton	1892
Vickers, T. E	Harrison	Washington	1899
Visanska, S. A	Atlanta	Fulton	1900
Walker, C. E	Sycamore	Irwin	1899
Walker, J. B	Lawrenceville	Lawrence	1889
Walker, J. L	Waycross	Ware	1892
Walker, T. D	Cochran	Pulaski	1897
Wall, J. M	Laurens Hill	Laurens	1900
Wahl, F	Savannah	Chatham	1900
Walton, J. H	Dublin	Laurens	1898
Ward, J. A	Richwood	Dooly	1897
Ware, Dudley B	Wright	Wilcox	1901
Ware, J. E. H	Kedron	Fayette	1900
Watson, G. B	Acree	Worth	1897
Weaver, J. A	Buena Vista	Marion	1890
Weaver, J. D	Eatonton	Putnam	1894
Weaver, J. L	Baxley	Appling	1890
Weaver, O H	Macon	Bibb	1899
Webb, J. F	Monticello	Jasper	1897
Weddington, J. L	Dublin	Laurens	1900
Welchel, Henry C	Dahlonega	Lumpkin	1900
Wells, James R	Stone Mountain	DeKalb	1900
West, Jas. N	Toccoa	Habersham	1901
Westbrook, G. W	Ila	Madison	1898
Westmoreland, W. F. (o., p.)	Atlanta	Fulton	1886
Westmoreland, J. W	Atlanta	Fulton	1897
Welchel, C. C	Comer	Madison	1891
Welchel, John E	Gillsville	Hall	1891
Whaley, Wm. S	Athens	Clarke	1900
Whipple, W. H	Macon	Bibb	1897
Whitaker, J. M	Milledgeville	Baldwin	1883
Whitehead, A. G. (v.-p., p.)	Waynesboro	Burke	1861
Wicker, R. H	Rome	Floyd	1901
Wilcox, G. A	Augusta	Richmond	1896
Wiley, R. C	Sparta	Hancock	1897
Wilkie, P. E	Colquitt	Miller	1897
Williams, W. J	Pembroke	Bryan	1897

Name.	Post-office.	County.	Admitted
Williams, W. P.	Blackshear	Pierce	1890
Williams, H. J. (o., c., p.)	Macon	Bibb	1883
Williams, A W	Gainesville	Hall	1899
Wills, T. J	Washington	Wilkes	1889
Wilmerding, W E	Atlanta	Fulton	1900
Wilkins, John G	Atlanta	Fulton	1900
Wilson, John Calhoun	Valdosta	Lowndes	1899
Wimberly, Warren W	Adams' Park	Twiggs	1899
Wimberly, John S	Sunlight	Stewart	1891
Winchester, W. R	Macon	Bibb	1883
Wise, B. T	Plains	Sumter	1893
Wood, C. V	Cedartown	Polk	1900
Wolff, Bernard	Atlanta	Fulton	1894
Wooten, Louis O.	Unadilla	Dooly	1897
Wright, Thos. R	Augusta	Richmond	1880
Wright, J. E	Macon	Bibb	1899
Yearwood, Kelley J.	San Luis Potosi, Mexico, P. O. Box 105.		1901
Youmans, J. R.	Stillmore	Emanuel	1901
Youmans, C. E	Adrian	Emanuel	1901
Youmans, L. P	Swainsboro	Emanuel	1901

NON-RESIDENTS.

Buford, O. H	Fort St. Phillip.	Louisiana.	1891
Gann, Dewell	Benton	Arkansas	1887
Griggs, A. F	Birmingham	Alabama	1899
Prather, W. B	Seale	Alabama	1894

HONORARY LIST.

This list is designed for aged, retired, or infirm members of the Association, who are entitled to all the privileges of the Association without the payment of dues.

The Secretary would be obliged to members to report any names that should go on this list.

Name.	Post-office.	County.	Admitted.
Alexander, J. F.(P.,C., V.-P.)	Atlanta	Fulton	1849
Battle, H. L	Wadley	Jefferson	1891
Bardwell, E. L	Talbotton	Talbot	1872
Bell, A. A	Madison	Morgan	1858
Brantley, F. M.	Senoia	Coweta	1849
Calhoun, F. R. (V.-P.)	Cartersville	Bartow	1873
Colding, C. H	Savannah	Chatham	1882
Coleman, J. T	Perry	Houston	1851
Dudley, M. J	Sonoraville	Gordon	1880
Gaston, J. McF.	Atlanta	Fulton	1884
Hopkins, T. S	Thomasville	Thomas	1865
Hoyt, W. D	Rome	Floyd	1872
Jones, W. L	Atlanta	Fulton	1849
Le Conte, Joseph	Berkely, Cal	———	1849
McDonald, C. M	Leesburg	Lee	1892
Maddox, W. D	Monticello	Jasper	1849
Quarterman, K. A	Walthourville	Liberty	1885
Read, J. B	Savannah	Chatham	1851
Redding, C. F.	Zebulon	Pike	1849
Smith, C. D.	Atlanta	Fulton	1894
Smith, J. B	Perry	Houston	1871

In Memoriam.

☞ Special Request to Every Member.—The Secretary *earnestly requests each member of the Association* to aid him in *filling* the blanks in the following Roll of Deceased Members *by making the necessary inquiries* in their respective cities and counties, *and writing him at once* on obtaining the desired information.

Name.	Post-office.	County.	Admitted.	Died.
Adams, C. B.	Augusta	Richmond	1868	1875
Aiken, W. F.	Savannah	Chatham	1895	1900
Alexander, J. R.	Cave Springs	Floyd	1849	.....
Alexander, L. B.	Forsyth	Monroe	1877	1891
Alfriend, E. W. (v.-p.)	Albany	Dougherty	1852	1886
Armstrong, W. S.	Atlanta	Fulton	1886	1896
Arnold, R. D. (v.-p., p.)	Savannah	Chatham	1849	1876
Ashworth, A. B. (s.)	Atlanta	Fulton	1887	1889
Avary, J. C.	Decatur	DeKalb	1859	1873
Baker, A. H.	Augusta	Richmond	1876	1891
Ballinger, M. R.	Floyd Springs	Floyd	1860	1886
Banks, J. T. (v.-p., p.)	Griffin	Spalding	1858	1880
Barkwell, T. J.	Hawkinsville	Pulaski	1859	.....
Barnett, J. W.	Raytown	Taliaferro	1880	1890
Battey, Robert (c., p.)	Rome	Floyd	1859	1895
Battle, H. L.	Russellville	Monroe	1849	.....
Beasley, J. A.	West Point	Troup	1849	1897
Bell, T. W.	Busbyville	Houston	1853	.....
Bignon, H. A.	Augusta	Richmond	1852	1870
Billing, S. A.	Columbus	Muscogee	1855	1872
Bizzell, W. D. (v.-p.)	Atlanta	Fulton	1882	1890
Black, R. C. (t.)	Augusta	Richmond	1852	1860
Bomar, B. F.	Atlanta	Fulton	1859	.....
Borcheim, L. E.	Atlanta	Fulton	1886	1887
Boswell, S. J. (v.-p.)	Columbus	Muscogee	1855	.....
Bosworth, Don B.	Atlanta	Fulton	1894	1898
Bothwell, D. J.	Vienna	Dooly	1849	.....
Bozeman, J. F.	Atlanta	Fulton	1855	1877
Boring, John M. (v.-p.)	Atlanta	Fulton	1856	1891
Boyd, Montague L.	Savannah	Chatham	1889	1897

Name.	Post-office.	County.	Admitted.	Died.
Brandon, D. S.	Thomasville	Thomas	1873	1878
Brantley, S. D.	Sandersville	Washington	1849	1897
Brawner, W. M.	Lexington	Oglethorpe	1883	
Broadhurst, W. W.	Augusta	Richmond	1852	1861
Brooks, C. A.	Americus	Sumter	1888	1894
Brown, S. E.	Eatonton	Putnam	1890	1896
Bruce, R. J.	Thomasville	Thomas	1874	1878
Bunn, William	Wilna	Houston	1854	
Burgess, Wm. R. (T., O.)	Macon	Bibb	1870	1878
Burney, S. W. (P.)				1876
Campbell, Robert	Augusta	Richmond	1849	1885
Carroll, J. C.	Laurens Hill	Laurens	1857	1870
Carroll, R. C.	Augusta	Richmond	1873	1882
Carter, C. J.	Lake Park	Lowndes	1889	1893
Castlen, F. G.	Macon	Bibb	1867	1874
Carlton, J. M.	Athens	Clarke	1882	1883
Cason, E. A.	LaGrange	Troup	1897	1897
Charlton, T. J. (C.)	Savannah	Chatham	1862	1886
Charters, W. M. (P.)	Savannah	Chatham	1851	1883
Chase, D. S.	Augusta	Richmond	1862	
Cickey, D. C.	Macon	Bibb	1894	1896
Clark, B. J.	Barnesville	Pike	1896	1898
Clark, S. B.	Rich. Factory	Richmond	1852	
Campbell, H. F. (O., V.-P., P.)	Augusta	Richmond	1851	1892
Coe, J. N.	Flat Rock	Pike	1856	
Colding, C. H.	Savannah	Chatham	1882	1894
Coleman, John S.	Augusta	Richmond	1891	1892
Colley, F. S. (P.)	Monroe	Walton	1856	
Cooper, G. F. (O., S., V.-P.)	Americus	Sumter	1849	1882
Copeland, A. B.	Hamilton	Harris	1878	1882
Cornwall, G. H.	Hillsboro	Jasper	1854	
Coursey, W. D.	Vidalia	Montgomery	1894	1898
Crawford, S. S.	Augusta	Richmond	1857	
Crump, E. D.	Herndon	Burke	1872	1881
Cumming, H. M.	Augusta	Richmond	1862	1887
Cunningham, L. S.	Big Creek	Forsyth	1859	1862
Cunningham, W. D.	Jasper	Pickens	1859	1866
D'Alvigney, N.	Atlanta	Fulton		1877
Davenport, C. W.	Point Peter	Oglethorpe	1852	
Davenport, H. S.	Calhoun	Gordon	1859	
Davis, W. L.	Albany	Dougherty	1849	
Deadwyler, M. P. (V.-P.)	Elberton	Elbert	1868	1895
Dean, S. H.	Conyers	Rockdale	1856	

Name.	Post-office.	County.	Admitted.	Died.
Dearing, W. E	Augusta	Richmond	1852	1867
DeCortez, C. A	Savannah	Chatham	1872	
Dickinson, J. T	Albany	Dougherty	1857	
Dickinson, R. Q. (v.-p., p.)	Albany	Dougherty	1850	
Divine, K. C	Atlanta	Fulton	1882	1899
Dobbins, W. O	Fort Gaines	Clay	1883	1890
Dostor, B. R., Jr	Blakely	Early	1896	1899
Doughty, Henry Campbell	Augusta	Richmond	1896	1899
Dugas, L. A. (p.)	Augusta	Richmond	1852	1884
Duncan, Wm.	Savannah	Chatham	1868	1900
Dupree, L. J	Camilla	Mitchell		1890
Engram, R. O	Montezuma	Macon	1881	1893
Eve, Joseph A	Augusta	Richmond	1852	1886
Eve, S. C	Augusta	Richmond	1868	1854
Felder, W. L	Augusta	Richmond	1857	1867
Fish, J. D (t.)	Savannah	Chatham	1875	1879
Fitzgerald, E	Macon	Bibb	1882	1885
Ford, L. D. (p.)	Augusta	Richmond	1849	1884
Fort, Moses T	Hawkinsville	Pulaski	1859	1878
Freeman, S. H	Dacula	Gwinnett	1891	1897
Franklin, M. A	Macon	Bibb	1849	1858
Frazier, W. M	Hawkinsville	Pulaski	1850	
Gaither, Henry	Oxford	Newton	1851	1890
Gaither, B. T	Oxford	Newton	1852	1853
Gardner, J. W	Augusta	Richmond	1857	
Gilmer, Wm. B	Macon	Bibb	1893	1899
Girardy, Edward	Augusta	Richmond	1852	1859
Gordon, J. M	Savannah	Chatham	1849	
Gray, Jas. A. (s.)	Atlanta	Fulton	1882	1887
Gray, S. H	Barnesville	Pike	1871	1885
Green, A. B	Pond Town	Sumter	1849	
Green, H. K	Macon	Bibb	1849	1867
Green, Thomas F	Milledgeville	Baldwin	1849	1879
Gregory, J. D		Sumter	1849	
Griffin, C. F	Cassville	Bartow	1888	1893
Griggs, A. W. (o., v.-p., c., p.)	West Point	Troup	1866	1900
Griggs, R. E	Columbus	Muscogee	1892	1897
Grimes, T. W	Columbus	Muscogee	1855	1882
Habersham, J. C	Savannah	Chatham	1853	
Habersham, J. C, Jr. (v.-p.)	Savannah	Chatham	1866	1881
Habersham, S. E	Eatonton	Putnam	1870	

Name.	Post-office.	County.	Admitted.	Died.
Hagan, Hugh	Atlanta	Fulton	1892	1898
Hallum, J. W	Carrollton	Carroll	1891	1895
Hammond, D.W. (v.-p.,c.)	Macon	Bibb	1857	1887
Harden, W. P	Harmony Grove	Jackson	1852	1885
Harrell, W. J	Bainbridge	Decatur	1874	1881
Harris, S. N. (v.-p.)	Savannah	Chatham	1851	1854
Harris, N. O	Atlanta	Fulton	1887	1896
Harris, Juriah (o.,v.-p.)	Savannah	Chatham	1852	1876
Harrison, Gabriel	Macon	Bibb		1862
Hart, A. C	Waynesboro	Burke	1852	
Hatch, Milo G. (c.)	Tennille	Washington	1883	1897
Hatchett, J. M	Fort Gaines	Clay	1892	1892
Havis, M. W	Perry	Houston	1854	1890
Hawes, E. C	Appling	Columbia	1852	
Hawkins S. B	Americus	Sumter	1871	1892
Heard, T. O	Griffin	Spalding	1867	
Hendrick, J. B	Covington	Newton	1857	1881
Henry, G. C	West Point	Troup	1872	
Hollis, T. B	Bolingbroke	Monroe	1897	1901
Hook, E. B	Augusta	Richmond	1857	1862
Houston, J. P. R	Savannah	Chatham	1873	1892
Howell, Dan H (s.)	Atlanta	Fulton	1878	1899
Hoxey, Thomas	Columbus	Muscogee	1849	1853
Hollingsworth, W. T	Madison	Morgon	1857	1893
Holmes, G.W. (v.-p.,p.,c.)	Rome	Floyd	1867	1890
Holmes, T. M. (o.)	Rome	Floyd	1883	1891
Hamilton, J. L	Stone Mount'n	DeKalb	1859	1890
Hunter, E. H. W	Louisville	Jefferson	1867	1883
Ingraham, E. P	Albany	Dougherty	1870	1873
Irvine, Robert	Augusta	Richmond	1880	1881
Johnson, C. W	Macon	Bibb	1870	1875
Johnson, John M	Atlanta	Fulton	1866	1886
Joiner, W. W	Hawkinsville	Pulaski	1897	1900
Jones, B. O	Atlanta	Fulton		
Jones, J. W	Atlanta	Fulton	1857	1871
Jowers, Clebe	Americus	Sumter	1897	1897
Kennedy, L. P	Atlanta	Fulton	1890	1892
Kennebrew, Henry	Athens	Clarke	1883	1886
Kirksey, E. J. (v.-p.)	Columbus	Muscogee	1871	1877
Kollock, P. M. (p.)	Savannah	Chatham	1852	1872

Name.	Post-office.	County.	Admitted.	Died.
Lamar, T. R. (v.-p.)	Macon	Bibb.	1849	1859
Lockhart, R. H	Columbus	Muscogee	1855	1859
Lattimer, C. T	Macon	Bibb	1889	1889
Lawrence, L. L	Blountsville	Jones	1889	1890
Leitner, C. B	Columbus	Muscogee	1852	1897
Lightfoot, W. S	Macon	Bibb	1849	1864
Long, Crawford W.	Athens	Clarke	1849	1878
Logan, J. P. (p.)	Atlanta	Fulton	1858	1891
Love, Wm. Abram, (v.-p.)	Atlanta	Fulton	1866	1898
Lumpkin, George	Maxey's Depot	Oglethorpe	1859	
Lumpkin, S. P.	Watkinsville	Clarke	1859	
Mackie, J. D	Augusta	Richmond	1852	1854
Mallit, R. G. W.	Dalton	Whitfield	1859	
Martin, J. D	Savannah	Chatham	1894	1898
Matthews, W. B.	Fort Valley	Houston	1884	1885
McBride, W. G	Oconee	Washington	1850	1873
McDowell, J. M	Barnesville	Pike	1887	1891
McGolrick, R	Macon	Bibb	1849	1853
McKinley, C. A	Newnan	Coweta	1859	
McMillen, J. E	Columbus	Muscogee	1872	1883
Means, A. (v.-p.)	Oxford	Newton	1851	1883
Means, O. S.	Oxford	Newton	1857	
Means, W. A.	Hendrix	Upson	1899	1900
Meiere, Wm. S	Madison	Morgan	1857	
Milam, R. J	Fairburn	Campbell	1882	1882
Miller, H. V. M.	Atlanta	Fulton	1851	1896
Morrison, D. H.	Savannah	Chatham	1868	1869
Mulligan, G. W. (v.-p., p.)	Washington	Wilkes	1883	1897
Musgrove, W. C. (c., s.)	Midville	Burke	1849	1876
Nash, R. A	Marion	Twiggs	1849	
Nisbet, R. H	Eatonton	Putnam	1854	1873
Nesbit, D. B.	Eatonton	Putnam	1894	1900
Noell, S. G	Ypsilanti	Talbot	1892	1892
Nottingham, C. B. (s., t., c. p.)	Macon	Bibb	1849	1875
Nunn, R. M	Savannah	Chatham	1871	1873
O'Daniel, William (t., p.)	Bullard	Twiggs	1870	1900
Ogilby, H. J. (v.-p.)	Madison	Morgan	1849	1873
O'Keefe, D. C. (s.)	Atlanta	Fulton	1852	1871
Orme, L. H. (s.)	Atlanta	Fulton	1866	1872
Owen, J. D		Baldwin	1850	
O'Sullivan, ——	Cork	Lee	1849	

Name.	Post-office.	County.	Admitted.	Died
Parsons, J. M	Russellville	Monroe		
Perdue, H	Barnesville	Pike	1889	1896
Pitts, G. W	Star	Butts	1859	
Pittman, S. S	Chipley	Harris	1900	1900
Poore, J. J	Monroe	Walton	1894	1896
Posey, J. F	Savannah	Chatham	1851	
Powell, T. S. (v.-p.)	Atlanta	Fulton	1857	1896
Pringle, W	Covington	Newton		
Ragan, Isham H	Palmyra	Lee	1856	
Raines, Thomas	Atlanta	Fulton	1872	1883
Raines, T. L	Atlanta	Fulton	1882	1884
Rauschenberg, Christian	Atlanta	Fulton	1861	1878
Richardson, C. P	Savannah	Chatham	1851	1853
Ridley, R. A. T. (v.-p.)	LaGrange	Troup	1859	1871
Robertson, J. J	Washington	Wilkes	1852	1872
Roddy, R. L. (v.-p.)	Forsyth	Monroe	1849	1878
Ruffin, W. R	Augusta	Richmond	1852	
Russell, W. J	Lawrenceville	Gwinnett	1861	
Ryan, T. D. L	Hawkinsville	Pulaski	1859	1876
Stafford, S. J	Madison	Morgan	1856	1859
Searcy, D. B	Bolingbrook	Monroe	1849	1885
Shropshire, J. W			1871	
Simmons, J. N	Atlanta	Fulton	1850	1871
Simmons, J. S	Gainesville	Hall	1873	1881
Simmons, S. B	Augusta	Richmond	1852	1867
Simmons, T. A	Irwinton	Wilkinson	1871	1871
Slaughter, J. T	Villa Rica		1851	1889
Smith, A. D	Montezuma	Macon	1871	
Smith, C. W	Jonesboro	Clayton	1859	
Smith, Hiram	Augusta	Richmond	1876	1888
Smith, H. H	Augusta	Richmond	1886	1887
Smith, R. M. (c.)	Athens	Clarke		1879
Smith, Thomas	Savannah	Chatham	1858	1876
Spier, W. A	Grantville	Coweta	1859	
Stallings, J. D	Preston	Webster	1871	
Stanford, F. A	Columbus	Muscogee	1849	1885
Starr, E. P	Savannah	Chatham	1868	1873
Steele, H	Knoxville	Crawford	1849	
Steele, R. T	Fairburn	Campbell	1849	
Steiner, H. H	Augusta	Richmond	1857	1892
Stephens, W. B	Forsyth	Monroe	1849	
Sterling, W. L	Atlanta	Fulton	1878	1894

Name.	Post-office.	County.	Admitted.	Died.
Stewardson, Thomas	Savannah	Chatham	1849	....
Stone, Geo. H	Savannah	Chatham	1875	1899
Stovall, G. M	Elberton	Elbert	1894	1894
Stozier, L. L	Albany	Dougherty	1867	.....
Strother, W. A	Albany	Dougherty	1867	1896
Sutton, C. B		Lee	1856	.....
Taliaferro, V. H. (V.-P.)	Atlanta	Fulton	1857	1887
Taylor, E. T	Columbus	Muscogee	1855	.....
Taylor, J. P	Haralson	Coweta	1859	1897
Taylor, R. N	Hawkinsville	Pulaski	1850	....
Thomas, J. G (V.-P., P., C., T.)	Savannah	Chatham	1867	1885
Thompson, Chas	Macon	Bibb	1849	1854
Thompson, Wm. L	Pitts	Wilcox	1897	1898
Trammell, A. A	Forsyth	Monroe	1856	.....
Tucker, O. W	Brunswick	Glynn	1890	1891
Underwood, J. B	Cave Spring	Floyd	1860	1881
Van Meter, J. N	Euharlee	Bartow	1879	1881
Wall, C. D	Columbus	Muscogee	1899	1900
Wall, W. W	Calhoun	Gordon	1860	.....
Walker, T. F	Cochran	Pulaski	1858	188
Walker, F	Macon	Bibb	1889	1898
Ware, A. E. O			1859	.....
Waring, J. J	Savannah	Chatham	1853	1888
Watson, W. A	Jefferson	Jackson	1883	1889
Wells, C. H	Savannah	Chatham	1853	1854
Wells, W. B	Chattanooga	Tennessee	1873	1891
Wells, Charles (P.)	Perry	Houston	1849	....
West, C. W	Savannah	Chatham	1853	1859
Westmoreland, W. F. (P.)	Atlanta	Fulton	1856	1890
Wethington, R. T	Thomasville	Thomas	1884	1887
White, S. G. (V.-P.)	Milledgeville	Baldwin	1868	1877
Whitlock, Isaac W	Washington	Wilkes	1852	1853
Wile, Henry	Atlanta	Fulton	1886	1887
Wiley, J. B	Macon	Bibb	1849	.....
Williams, T. L		Dooly	1849	....
Williams, W. L	Fayetteville	Fayette	1873	.....
Willingham, Willis	Lexington	Oglethorpe	1849	1872
Winchester, E. A	DeSoto	Sumter	1893	1897
Winn, G. A	Bolingbroke	Monroe	1849	1862
Wirsen, G. F	Rutledge	Morgan	1871	1884

Name.	Post-office.	County.	Admitted.	Died.
Woodson, C. T.	Wilna	Houston	1854	
Wooten, W. H	Lexington	Oglethorpe	1852	1860
Word, T. J	Rome	Floyd	1887	1890
Word, R. C.	Atlanta	Fulton	1855	1890
Wragg, J. A	Savannah	Chatham	1853	
Wright, P. H	Macon	Bibb	1869	1888
Yonge, Easton.	Savannah	Chatham	1880	

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